

DEAF FAMILIES WITH CHILDREN WHO HAVE COCHLEAR IMPLANTS:  
PERSPECTIVES AND BELIEFS ON BILINGUALISM IN AMERICAN SIGN  
LANGUAGE AND ENGLISH

by

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## DEDICATION

This dissertation is dedicated to my loving husband Jon, who has tirelessly supported me with love, encouragement, and patience throughout this process and to my two precious daughters, Chloe and Kira, who embrace being bilingual in ASL and English.

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## TABLE OF CONTENTS

	Page
List of Tables .....	vii
List of Figures .....	viii
Abstract .....	ix
1. Introduction.....	1
Deaf Children and Cochlear Implants.....	1
History of American Sign Language in Education .....	5
Technology Advancement for Deaf Population .....	9
Ethical Issues .....	10
Deaf Children with Cochlear Implants Who Have Deaf Parents .....	13
Purpose of the Study and Research Questions.....	15
2. Review of the Literature .....	16
Theoretical Framework.....	16
Unpacking Disability from Deafness.....	17
Language Ideologies on American Sign Language and English .....	19
Family Language Policy .....	28
Definitions of Bilingualism.....	30
Cultural Identity .....	34
Psychosocial Effects .....	37
Language Development in Bilinguals.....	38
Socio-cultural Factors .....	41
Families' Decisions on Language Choices .....	42
Deaf Families and their Linguistic Support.....	46
Efficacy and Outcomes of Cochlear Implants .....	48
Families' Experiences with Cochlear Implants .....	52
Studies on Bilingual Families and their Beliefs on Bilingualism .....	54
Implications for the Study.....	62
Deaf Families and their Perspectives on Cochlear Implants .....	65
Summary .....	70
3. Methods.....	72
Research Questions .....	74
Researcher Identity .....	74
Setting .....	78
Participants.....	79
Data Collection .....	80
Demographic Profile .....	83
Data Analysis .....	86

Validity Threats .....	89
4. Results.....	90
Question 1 .....	90
Question 2 .....	121
Question 3 .....	123
Question 4 .....	128
Summary of Findings.....	176
5. Discussion .....	178
Summary of Research Findings .....	178
Implications and Recommendations for Families .....	190
Implications and Recommendations for Practices .....	192
Implications and Recommendations for Policy .....	195
Summary of Recommendations.....	197
Limitations of the Study.....	198
Recommendations for Future Research .....	200
Conclusion .....	201
Appendix A Recruitment Material.....	203
Appendix B Electronic Flyer .....	205
Appendix C Electronic Informed Consent Form .....	206
Appendix D Electronic Survey Questionnaire.....	209
Appendix E Informed Consent Form for Follow-Up Interview .....	221
Appendix F Interview Questions .....	223
References .....	224

## LIST OF TABLES

Table	Page
Table 1: Descriptions of the Families .....	85
Table 2: Language Use at Home and Schools/Daycare.....	86
Table 3: Second Level of Category Development.....	88
Table 4: Correlations between Parents' Perceived Language Abilities and Belief Statements .....	124
Table 5: Language Use in the Home.....	129
Table 6: Language Use in Educational Placements .....	143



## LIST OF FIGURES

Figure	Page
Figure 1: Family Language Policy Framework .....	29
Figure 2: Guiding Framework for This Study .....	65
Figure 3: Families' Opinions on Belief Statements .....	91
Figure 4: Parents' Perceived Language Abilities.....	122

## ABSTRACT

### DEAF FAMILIES WITH CHILDREN WHO HAVE COCHLEAR IMPLANTS: PERSPECTIVES AND BELIEFS ON BILINGUALISM IN AMERICAN SIGN LANGUAGE AND ENGLISH

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This study examines Deaf parents with children who have cochlear implants on their beliefs and perspectives of bilingualism in American Sign Language and English using complementary mixed methods through surveys and follow-up interviews. Seventeen families participated in the survey and eight families continued their participation in semi-formal follow-up interviews. Findings show a majority of the Deaf families in the study exhibit positive beliefs and perspectives towards using both English and ASL for their children with cochlear implants and set high expectations for their children to become equally fluent in both languages, including English. However, American Sign Language is perceived to be essential for effective communication among families as well as for developing a strong identity as a Deaf person and a foundation for learning English. Parents' beliefs and perspectives towards both languages may stem from their

own experiences being Deaf and being bilingual. They value both languages as part of their children's lives for social, academic, and cognitive gains.

Most of the families used ASL with their children since birth and continued to use ASL after their children have received cochlear implants. Several families have added the use of spoken language at home to support their children's spoken language development after implantation. Parents expressed some challenges and solutions to maintain bilingualism with their children. Ensuring that their children have sufficient exposure to both languages was the most common challenge expressed by the families. Finding the right educational placement for their child was also difficult for many families. Families sought different ways to support their children's language development through technology, speech therapy services, and interacting with spoken language models. Parents with deaf children who have cochlear implants, regardless if they are hearing or deaf, may benefit from learning about the advantages as well as the challenges of maintaining bilingualism in sign and spoken languages and being part of both the deaf and hearing communities.

## 1. INTRODUCTION

### **Deaf Children and Cochlear Implants**

Educators and researchers, alike, have questions about the impact of cochlear implants on deaf children's language development (Archbold & O'Donoghue, 2009; Marschark, Rhoten, & Fabich, 2007; Moores, 2009; Spencer 2004a). The primary goal of cochlear implantation is to facilitate spoken language development. Therefore, oral/auditory methodologies of language learning are typically recommended for deaf children with cochlear implants (Geers, Nicholas, & Sedey, 2003; Percy-Smith et al., 2008). However, research indicates spoken language outcomes after cochlear implantation are unpredictable (Belzner & Seal, 2009; Fagan, Pisoni, Horn, & Dillon, 2007; Hawker et al., 2008; Inscoe, Odell, Archbold, & Nikolopoulos, 2009; Spencer 2004a, 2009). With many factors impacting deaf children's spoken language development, there is a possible risk of language delays if the children are not exposed to an accessible language early in their lives (Mayberry, 2007). Deaf children do not have the same auditory access as their hearing peers; therefore, their speech and listening abilities are often limited (Goldin-Meadow & Mayberry, 2001). Alone, an auditory/oral approach may not be an optimal approach for all children with cochlear implants in all contexts. This issue causes researchers, educators, and medical professionals to debate if withholding sign language in cochlear-implanted deaf children's language education

detracts from their language, communication, literacy, academic, and socio-emotional growth (Gale, 2010).

Professionals and families frequently choose not to include use of sign for children with cochlear implants due to beliefs that sign language may impede spoken language development (Kermit, 2010). There is evidence indicating that sign language provides children with an early, accessible language that may prevent or minimize language delays (Mayberry, 1993, 2007; Mayberry & Eichen, 1991; Mayberry, Lock, & Kazmi, 2002; Schick, de Villiers, de Villiers, & Hoffmeister, 2007; Humphries et al., 2012). Several studies have indicated that sign language does not interfere with the spoken language development of children with cochlear implants (Jiménez, Pino, & Herruzo, 2009; Preisler, Tvingstedt, & Ahlström, 2002; Yoshinaga-Itano, 2006). A bimodal bilingual approach that supports the development of two communication modalities, visual and auditory, in two languages may be ideal for children with cochlear implants (Nussbaum & Scott, 2011; Nussbaum, Scott, & Simms, 2012).

There are two primary perspectives on deafness. From a medical perspective, deafness is viewed as a pathological deficiency and the focus is on correcting the hearing loss. From a cultural stance, being Deaf<sup>1</sup> is viewed as a way of life rather than as a disability (Lane, 2005). Members of the Deaf community communicate predominantly through sign language and identify themselves as a minority culture, the Deaf culture. Within the Deaf community, Deaf people share similar beliefs and practices about being deaf and have a sense of pride and positive views about being deaf.

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<sup>1</sup> The capital letter, “D”, in the word Deaf is defined as a cultural identity of the deaf community. Lower “d” in the word deaf is defined as an audiological condition.

An increasing number of Deaf families are expressing a desire for their children to be bilingual and bimodal. They not only want their children to be academically successful and bilingually fluent in ASL and written English, but they also want their children to be competent in spoken language (Mitchiner & Sass-Lehrer, 2011). The present study explores the beliefs and perspectives of Deaf families whose children have cochlear implants on bilingualism in American Sign Language and English. Also investigated were the practices families used to support their children's language development in ASL and English.

A cochlear implant is an auditory technological tool designed to increase deaf individuals' access to and understanding of spoken language. Cochlear implants are electronic devices that have both surgically implanted and externally worn parts designed to enhance hearing abilities (National Institute on Deafness and Other Communication Disorders, 2009). Internally, it consists of a receiver/stimulator that is surgically implanted under the skin, behind the ear with a magnet and an electrode array that is implanted into the cochlea and provides direct electrical stimulation to the nerve fibers. The external parts include a microphone, a speech processor, and a transmitting coil that are placed behind the ear.

Most literature on the topic is exclusively focused on the experiences of hearing families and the decisions and opportunities they face with a deaf child (Archbold, Sach, O'Neill, Lutman, & Gregory, 2006, 2008; Li, Bain, & Steinberg, 2003; Sach & Whynes, 2005; Steinberg et al., 2000; Watson, Hardie, Archbold, & Wheeler, 2008). In the studies, hearing families predominantly prefer for their deaf children with cochlear implants to

develop spoken language skills (Archbold et al., 2008; Hyde, Punch, Komesaroff, 2010; Zaidman-Zait & Most, 2005). Some hearing families also value the use of sign language with their children who have cochlear implants in hopes that it will accelerate social, emotional, and academic development (Christiansen & Leigh, 2002; Hyde & Punch, 2011).

Deaf children with Deaf parents are provided with rich and accessible visual language after birth which can lay a foundation for learning a second written and spoken language if children are later given cochlear implants. Few researchers have explored Deaf families' experiences (Dettman, French, Constantinescu, Dowell, & Rousset, 2012; Hardonk et al., 2011; Hyde et al., 2010; Meadows-Orlans, Mertens, & Sass-Lehrer, 2003; Meadows-Orlans, Spencer, & Koester, 2004). This study aims to investigate Deaf families' experiences, perspectives, and beliefs from a sociocultural perspective and to evaluate the role bilingualism plays in the language development of children with cochlear implants learning American Sign Language and English, both written and spoken.

Evidence indicates there are language, educational, and communicational advantages for deaf children who learn sign language. A scholar in deaf education, Baker (2011) cites a strong body of evidence, which documents the linguistic advantages of early visual language for all children, both deaf and hearing. Neuroscientific research validates that the brain has the capability of learning two or more languages as well as learning them through different modalities: spoken, visual, and written (Petitto, 2009). Sign language is fully accessible and "exhibits same degree of grammatical complexity

and same principles of grammatical organization of spoken language,” (Meier & Newport, 1990, p. 2). Few families use sign language on a short-term basis before their children receive their cochlear implants and then transition exclusively to spoken language after the child becomes fluent in spoken English (Chute & Nevers, 2006; Hammes et al., 2002). Some families prefer maintaining bilingualism, using both sign and spoken communication indefinitely (Swanwick & Tsverik, 2007). Some evidence indicates that children who have cochlear implants and use sign language have positive outcomes in all aspects of development (Archbold & O’Donoghue, 2009; Preisler et al., 2002; Yoshinaga-Itano, 2006). As more families elect to provide their deaf children with cochlear implants, I believe it is important to investigate how bilingualism may serve an important role in the comprehensive development of a child.

The Deaf population has unique linguistic needs that differ from their hearing peers, yet, even though their pathways may differ, deaf children are fully capable of academic achievement (Marschark, Convertino, & LaRock, 2006a). More than 95% of deaf children are born to hearing families and, therefore, they do not share the same linguistic experiences as their family members (Mitchell & Karchmer, 2004). The remaining 5% of deaf children are born to parents who are deaf themselves and can share the same linguistic, cultural, and social experiences with their children.

### **History of American Sign Language in Education**

Educating children through the use of sign language has a long history. For many decades, professionals in deaf education debated which methods of communication were best for teaching deaf children: through an auditory-verbal approach or through sign



language. In an effort to resolve the disagreement, several efforts to combine the approaches have been attempted (Marschark, Schick, & Spencer, 2006b).

The years between 1817-1880 are referred to as the “Golden Age” of deaf education. Sign language was widely accepted and respected by educators in schools for the deaf (Bauman, Nelson & Rose, 2006). However, that changed in 1880, when the controversy between Oralism and Manualism in deaf education heightened. The period between 1880-1957 was known as the “dark ages” of deaf education. In 1880, at the International Conference on the Education of the Deaf (ICED) in Milan, Italy, members voted to “convert all deaf education to oralism,” (Bauman et al., p. 243). It was believed that sign language would interfere with children’s learning of spoken English. As a result, sign language was forbidden in classrooms. Deaf teachers and administrators could no longer teach deaf children. Deaf children were punished severely if they used sign in the classroom so they were trained to speak, instead (Baynton, 1996). Deaf children who did not have full access to spoken language frequently performed poorly in academics. As a result, many deaf children exhibited low levels of literacy and academic skills since they did not have full access to a language early on in life (Marschark et al., 2006a).

In the 1950’s, a hearing professor from Gallaudet University, Dr. William Stokoe, became interested in exploring sign language after seeing students and faculty signing around campus. Through his research, he recognized American Sign Language (ASL) as a formal language, publishing his first linguistic study of ASL in 1960 (Baynton, 1996). This acknowledgement changed Deaf and hearing communities’ perception of ASL, since, prior to Dr. Stokoe’s research, American Sign Language was not accepted as a

language. His validation of ASL sparked numerous studies related to linguistics and deaf education. However, even though research had proven the benefits of sign language for deaf children, it was not readily applied in educational practices.

In the 1970's and 1980's, sign language slowly entered back into deaf schools but in English-based forms such as Signed Exact English and Simultaneous Communication (speaking and signing at the same time). The use of simultaneous communication or using English-based signs typically combine parts of English and ASL grammar and structure and distorts the full language structure of both English and sign language. As a result, deaf children taught through English-based signs frequently do not develop a strong foundation in a language that is essential for academic achievement (Johnson, Liddell, & Erting, 1989).

In the early 1990s, a bilingual-bicultural education movement, where both ASL and English would be taught, emerged in deaf schools. Some educators indicated bilingual approaches were beneficial for deaf and hard of hearing students. However, some writers argue there is insufficient empirical evidence to justify the benefits of bilingual education for deaf and hard of hearing children and further research on the benefits of bilingualism for deaf children are needed (Kermit, 2010).

In the summer of 2010, the organizing members of the International Council on the Education of the Deaf and the British Columbia Deaf Community in Canada urged the community to reject all resolutions passed at the ICED congress in 1880 which denied deaf students the use of sign language in educational programs and refused to acknowledge deaf people's linguistic rights (ICED, 2010). This symbolic event

demonstrated to everyone what the Deaf community already knew to be true: incorporating sign language into the education of deaf children is as important as it is a deaf child's linguistic right to sign (National Association of the Deaf, 2008). In the 2008 position statement on American Sign Language from the National Association of the Deaf, the NAD reaffirmed their position from 1880, when NAD first established "that acquisition of language from birth is a human right for every person, and that deaf infants and children should be given the opportunity to acquire and develop proficiency in ASL as early as possible," (NAD, 2008, Introduction, para. 2). The belief that sign language is a linguistic right for deaf children is also in consensus with the World Federation of the Deaf and the United Nations on Convention on the Rights of Persons with Disabilities' positions on sign language (World Federation of the Deaf, 2007; United Nations, 2008).

Despite these resolutions, a majority of deaf children are mainstreamed, often without full or even partial access to ASL. According to a recent demographic study, the Gallaudet Research Institute's 2009-2010 Regional and National Summary (2011), out of 37,828 deaf children across the country, 71.6% of the families do not regularly sign at home while 23.0% of the families regularly sign. A similar pattern of language use is found in schools. According to the same study, out of 37,828 deaf students across the country, 53.0% of the students were taught through spoken language only, 27.4% of the students were taught through sign language only, 12.1% of students were taught through sign-supported spoken language (simultaneous communication), and 5.0% in cued speech. Since the Education for All Handicapped Children Act of 1975 gave deaf students the right to free and appropriate public education, more deaf children are placed

in mainstream settings than in schools for the deaf (Karchmer & Mitchell, 2003). The study also revealed the median reading ability for 15-year-old deaf or hard-of-hearing student in the U. S. to be around a sixth grade level, much lower than their hearing peers (Karchmer & Mitchell).

### **Technology Advancement for Deaf Population**

Visual and listening technology advancements in the 21<sup>st</sup> century have allowed people who are deaf to gain more access to the world of communication. Visual technological advancements include enhanced communication between deaf and hearing people through multiple video relay services. Video relay services enable deaf people to make calls and converse with hearing people through a sign language interpreter using a videophone. Many mobile phones now offer mobile video chat capabilities allowing deaf people to easily communicate with others through sign language. Automatic captioning on YouTube is one of latest technological advancements allowing deaf people to have more access to video content on the Internet (Harrenstien, 2009).

Listening technologies for deaf people, especially those with hearing aids and cochlear implants, are also becoming more sophisticated. Digital technology enhances the sound quality of hearing aids and includes automation features for sound control (Edwards, 2007). Since the introduction of cochlear implants twenty years ago, their technology has greatly improved. Newer cochlear implant devices are smaller, thinner, and more powerful than older models. They have thinner and more flexible electrodes and wires than before which make it possible for surgeons to place more electrodes in the cochlea and enhance the sound quality (Hilliard, 2010).

The number of deaf children receiving cochlear implants has increased rapidly in the last ten years. The National Institute on Deafness and Other Communication Disorders Organization (NIDCD) along with the National Institutes of Health (NIH) estimated about 28,400 children in the United States, alone, have received cochlear implants (Cochlear Implants, 2011). Most recipients of cochlear implants are children between one and six years old. The rapid increase of cochlear implantation has led to an explosion of literature and research on cochlear implants as well as the implementation of universal newborn hearing screening nationwide (Dettman, Pinder, Briggs, Dowell, & Leigh, 2007; Li et al., 2003).

### **Ethical Issues**

Families with deaf children often receive information about hearing loss and cochlear implants predominantly from a medical view of deafness instead of from a cultural and social perspective (Berg, Ip, Hurst, & Herb, 2007; Christiansen & Leigh, 2004; Hyde & Power, 2006; Valente, 2011; Young et al., 2006). Families frequently receive information about deafness that is likely influenced by opinions, beliefs, and attitudes of professionals, educators, and specialists who work with deaf children (Li et al., 2003). Families, both deaf and hearing, often find it difficult to obtain current, accurate, and non-biased information about the outcomes for children who have cochlear implants (Johnson, 2006; Li et al., 2003).

Pediatric cochlear implantation raises ethical issues from several perspectives. From a medical perspective, cochlear implantation indicates the need to “fix the problem” and to cure deafness. Dr. Joseph Valente (2011) critically analyzed websites of supporters

of the cochlear implant industry, the Alexander Graham Bell Association, and Cochlear Americas. Valente argued there is an indication of Audism in supporters of cochlear implant industry's discourse. The term, Audism, was coined by Dr. Tom Humphries (1975) as an act of discrimination against deaf people, with beliefs that it is superior to be hearing. Audists frequently discourage the use of sign language and participation in the Deaf World. Their goal is to assimilate deaf children into the hearing world so they can function like hearing people.

Deaf individuals who are accepting of cochlear implants typically view the devices as a tool -- not necessarily as a fix for a defect, but as adding to a repertoire of tools that aid and enhance one's ability to communicate with those around them (Christiansen & Leigh, 2004, 2011). Dr. John Christiansen and Dr. Irene Leigh and among other scholars explored the Deaf community's perspectives towards cochlear implants indicated cochlear implants are gradually becoming more accepted within the Deaf community (Christiansen & Leigh, 2004, 2011; Gale, 2010; Harris & Paludneviene, 2011; Lloyd & Uniacke, 2007; Rashid, Kushalnagar, & Kushalnagar, 2011). Deaf Australians, Karen Lloyd and Michael Uniacke, (2007) reported about a shift in the Deaf community's reactions and perceptions towards cochlear implants twenty years after cochlear implants were created, saying, "The Deaf community flexed and adjusted to Deaf people with hearing aids, just as it is doing now for those with the cochlear implant," (Lloyd & Uniacke, 2007, p.193). Getting a cochlear implant is considered a personal decision made by individuals and/or families. NAD changed their position statement in 2000, on cochlear implants and stressed, "Cochlear implantation is a

technology that represents a tool to be used in some forms of communication, and not a cure for deafness,” (National Association of the Deaf, 2000, “NAD position statement,” para. 5).

Children with cochlear implants can benefit from participating in environments that reflect the language and culture of the Deaf community because it positively impacts their peer interaction, self-image, self-esteem, and identity formation (Archbold & Wheeler, 2010; Grosjean, 2008; Preisler et al., 2002; Swanswick & Gregory, 2007; Keating & Mirus, 2003; Most, Wiesel, & Blitzer, 2007; Wald & Knutson, 2000; Wheeler, Archbold, Gregory, & Skipp, 2007). In a study by Dr. Elaine Gale (2010), participants who were part of the Deaf community share a consensus on the benefits and usefulness of visual language for children with cochlear implants and strongly believe children with cochlear implants can be bilingual by using both signed and spoken language and function in both Deaf and hearing communities.

Christiansen & Leigh (2012) argue there are still “pockets of resistance” within the Deaf community against pediatric cochlear implantation (p. 53). Those individuals with opposing beliefs on cochlear implants consider it a cultural genocide practice permutated by medical and technological professions in effort to remove deafness from the human race (Ladd, 2007). Cochlear implantation was also perceived as a violation of deaf child’s human rights (Lane, 2007). Lane debated while there are needless and harmful risks with cochlear implantation, especially from the surgery, deaf children are violated of their rights to have the decision whether to receive a cochlear implant or not. If the goal for cochlear implantation is to fix the hearing loss and to urge for oral

education by withholding sign language, then the child may be deprived of their rights to become fluent in a language (Ladd, 2007; Lane, 2007).

### **Deaf Children with Cochlear Implants Who Have Deaf Parents**

Cochlear implant users predominantly come from hearing families. In the past it was not common for Deaf parents to have their children implanted. In the late 20<sup>th</sup> century, the Deaf community strongly felt cochlear implants affected Deaf culture and the cohesiveness of the Deaf community (National Association of the Deaf, 1991). There were concerns that implanting children with cochlear implants would cause them to have emotional, linguistic, and social problems (Christiansen & Leigh, 2002). Currently, the number of deaf children with Deaf parents receiving cochlear implants is gradually increasing (Dettman et al., 2012; Hardonk et al., 2011; Hassanzadeh, 2012; Hyde et al., 2010; Mitchiner & Sass-Lehrer, 2011).

Around 95% of deaf children have hearing parents and, in most cases, hearing parents will choose to have their children implanted and placed in an auditory-verbal or auditory-oral environment rather than in a signing environment (Archbold et al., 2008; Huttunen & Välimaa, 2010; Li et al., 2003). Often, these children are not exposed to Deaf culture and sign language. However, on occasion, hearing families will choose a different route and enroll their children in programs promoting sign language development, requiring hearing parents to learn a new language and culture alongside their child (Meadows-Orlans et al., 2003).

The remaining 5% of deaf children have deaf parents. Deaf parents who use sign language can more easily transmit cultural practices and expose their young children to



sign language from birth. Deaf children born to deaf parents do not typically receive cochlear implants often achieve academically and developmentally alongside their peers.

Culturally, Deaf parents and hearing parents interact with their deaf children differently; therefore, they also support their deaf children's language development differently. Deaf parents of deaf children are likely to communicate visually with their deaf children and incorporate strategies to support the learning of a visual language (Harris & Mohay, 1997; Koester & Lahti-Harper, 2010; Waxman & Spencer, 1997). Hearing parents usually have little experience in a visual language and tend to predominately use speech to communicate with their deaf children. For example, Loots, Devisé, & Jacquet (2005) investigated the differences between early parent-child interactions with deaf children among three groups: hearing parents who use oral-aural approach, hearing parents who use total communication<sup>2</sup> and deaf parents who use sign language. Results show that deaf parents are more involved in symbolic intersubjectivity through exchanging and sharing symbolic and linguistic interactions with their deaf babies than the hearing parents in the study. Hearing parents who adapted their communication to be more visual and tactile with their deaf children saw an improvement in their interactions and communication (Loots et al., 2005). This existing research begs for a deeper understanding of how deaf children with cochlear implants and Deaf parents can develop spoken language with support from sign language.

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<sup>2</sup> An approach that is defined as using different modes of communication through sign, spoken, visual, and auditory cues matching a child's linguistic needs and abilities (Hawkins & Brawner, 1997).

## **Purpose of the Study and Research Questions**

Recently, more Deaf parents have chosen to have their children receive cochlear implants even though they know deaf children can achieve academically and function in the hearing world without cochlear implants (Mitchiner & Sass-Lehrer, 2011). These parents are opting to have their children not only to be fluent in American Sign Language (ASL) and in written English, but also in spoken English. This dissertation explores families' perspectives of their experiences and beliefs in supporting their young children to become bilingual in American Sign Language (ASL) and spoken English.

**Research Questions.** This study was guided by the following research questions:

- 1) What are Deaf families' beliefs, ideologies, and attitudes about language development in ASL and spoken English for their young children with cochlear implants?
- 2) How do families perceive their own language abilities in American Sign Language and English?
- 3) Is there a relationship between families' language abilities and their beliefs about ASL and English?
- 4) How do Deaf families' support their young children's language development in ASL and spoken English at home?

## 2: REVIEW OF THE LITERATURE

The literature review provides readers with background information on key literature pertaining to the areas of Deaf families' beliefs on bilingual development in ASL and English and the outcomes from cochlear implants. The literature review is organized into five different sections. The first section introduces the theoretical framework for the study. The second section briefly addresses the efficacy of cochlear implants and the impact they have on deaf children. The third section shares a review of families and their experiences with children who have cochlear implants. The fourth section discusses minority families who are bilingual and their beliefs and perspectives about maintaining bilingualism with their children. Existing studies that explore deaf families' experiences with cochlear implants are discussed in the last section.

### **Theoretical Framework**

A theoretical framework is developed to better understand the relationship between families' beliefs and their children's bilingual development. The framework involves: unpacking deafness as a disability, family language policy, language ideologies on American Sign Language and English, theories of bilingualism, cultural identity, language and cognitive development, and socio-cultural factors.

## **Unpacking Disability from Deafness**

Before reviewing literature that discusses deaf children with cochlear implants, it is critically necessary to address different perceptions of deaf people to establish a framework for this study. There are two distinct perceptions towards deaf people in our society. From a pathological perspective, deafness is viewed as a disability and as a medical condition. From a cultural stance, being deaf is viewed as a way of life where one is part of a minority group. The dichotomy between these perspectives causes an “imbalance” in power between Deaf and hearing people (Ladd, 2007, p. 2).

Consistent historical conceptions and discourses of what makes one “normal” contribute to people’s perceptions of those who are deaf (Bauman & Murray, 2010; Sparrow, 2005; Young, 1999). Critics believed that one who does not have the “full range of normal human capacities,” is viewed as a disabled person (Sparrow, 2005, p. 139). The majority of society tends to view deafness as a disability, due to the loss of the ability to hear. Therefore, deafness is typically perceived as a tragic loss and a disabling medical condition that needs to be cured. Coming from a critical disability study stance, disability rights advocates argue that correcting and overcoming the disability is an act of cultural prejudice against disability, also called Ableism (Hehir, 2002). Critical disability studies examine the relationship between disabilities and various aspects of culture and society. Disability studies explore the roots of discrimination, oppression, stigmatization, and marginalization against people who are disabled (Gabel, 2005). Hehir (2002), a disability advocate, suggests, a “disability is not a tragedy, society’s response to disability can have tragic consequences for those who have disabilities,” (p.2). The ideologies that

Ableists hold against people with disabilities are socially constructed. These assumptions can have negative influences on how children with disabilities are viewed and educated.

The majority of society holds Ableist assumptions, viewing deafness as a tragic loss and believing it is a moral responsibility to cure deafness. Hearing parents frequently undergo a grieving process when they discover their child is deaf because deafness is regarded as, at best, a deficit and, at worse, a tragedy. In a 2007 study, Young and Tattersall interviewed hearing families whose infants were identified as deaf during initial newborn hearing screening. The families were asked about the importance of knowing early on that their child was deaf and about their expectations for their child's development. The hearing parents' early responses towards deafness were grief, confusion, and despair. They viewed deafness as a medical problem, like an illness. Parents in the study assumed their deaf children would not have the same capacity to develop and achieve as their hearing peers. The parents did not have a full understanding of what it meant to be deaf and how their children's pathways of learning would differ from their hearing peers. A paradigm shift from a deficit model to a cultural-linguistic model has helped deaf children's social-emotional, linguistic, and intellectual growth (Young, 1999). Parents who underwent an adjustment of perspectives towards their deaf child from a deficit model to a cultural linguistic model reduced their apprehensions about having a deaf child as they realized deaf children still could succeed in life.

The Deaf community rejects the idea that they are disabled and argues that deaf people are members of a minority cultural group. From a cultural perspective, being deaf is not a deficit, but a gain that contributes to cultural and linguistic diversity in our

society (Bauman & Murray, 2010; Young, 1999). Dr. Harlan Lane (2007) defined Deaf people as those in a minority group who use signed languages, calling them members of Deaf-World and identifying them as an ethnic group rather than a group of people who share a disability. In fact, Deaf-World members actually meet the characterization criteria defined by social scientists as an ethnic group. For instance, they share the same norms for behavior, values, knowledge, customs, language, and social structure (Lane, 2007).

### **Language Ideologies on American Sign Language and English**

Language ideology is an individual's or group's beliefs and attitudes about language and linguistic issues (Woolard & Schieffelin, 1994). All language users have their own language ideologies, and these determine their choices, evaluation, and use of language in society, social relations, and educational settings (Reagan, 2011). Society's beliefs and attitudes about American Sign Language (ASL) and English can have a great impact on how deaf children are educated.

Discussions of ideologies about American Sign Language and English can be framed through Robert Ruiz's (1984) three proposed language orientations: language-as-problem; language-as-a-right; and language-as-a-resource (Nover, 1995; Regan, 2011). Negative perspectives and devaluation of a language is an indication of language-as-a-problem orientation. Language-as-a-right is a reaction against the language-as-a-problem orientation, opposing the devaluation of the language and recognizing the language as a human's right. Language-as-a-resource is perceived as a cultural and social resource that contributes to our society.

Deaf children's linguistic and cognitive development has been a significant issue in deaf education. Even a child with mild hearing loss has a risk of a language delay (Meadows-Orlans et al., 2003; Spencer, 2004b). Earlier in the mid-nineteenth century, the understanding of language development for deaf children was mostly based on theoretical and philosophical arguments, not on empirical evidence (Marschark et al., 2006b). Some educators and theorists strongly believed sign language interfered with spoken language development. This is an example of the ASL-as-a-problem orientation. In the last fifty years, more research of deaf children's sign language development has provided strong evidence which supports the benefits of sign language and grants a greater understanding of how deaf children acquire and learn language (Marschark et al., 2006b).

Using American Sign Language (ASL) has been historically seen as a "social, economic, and educational disadvantage" in our auditory-based society (Nover, 1995, p. 113). Those who perceive ASL-as-a-problem typically focus on educating deaf children through English-only approaches such as oralism or sign-supported speech. Most oral programs that use oral methodology prohibit the use of sign language in the classroom. Alexander Graham Bell was one of the leaders in advocating oralism for deaf children in the 1800's and strongly believed sign language interfered with spoken language development. Historian Baynton (1996) described how Bell and other influential people tried to suppress sign language and make it non-existent by prohibiting children to use it in the classroom. Bell's influence lives on today as some people still advocate for oral-only education in many schools and programs across the country (Hehir, 2002).

A significant amount of research indicates that a child's hearing loss can create a language delay, but the real cause of such a delay can be lack of contact with an accessible language (Mayberry et al., 2002; Spencer, 2004b). When young children are not exposed to an accessible language at an early age, they risk having language and cognitive delays (Mayberry, 1993, 2007; Mayberry & Eichen, 1991; Mayberry et al., 2002). Scholar in deaf education, Kuntze (1998) argues deaf children are often mislabeled to be language delayed when they should be considered "language deprived" (p. 2). Deaf children have the ability to acquire and develop a rich and full language through sign language (Meier & Newport, 1990). Sign language is natural and accessible to both deaf and hearing children.

The issues of status and power are strongly tied with language ideologies. English is usually seen as the language of power in our society; thus, validation of other minority languages tends to be limited (Nieto, 2002). Sonia Nieto, a scholar in bilingual education, (2002) observed that our society holds negative ideologies towards individuals from minority groups, "Those who speak a native language associated with low status and limited power—especially if they do not speak English well, or speak it with an accent are often regarded as deficient," (p. 82). As a result, it is common in our society for minority children to lose their first language (Kouritzin, 1999). Losing one's first language is defined as, "restricted minority-language acquisition in a majority-language submersion setting," (Kouritzin, p. 11). Children in families that speak a minority language may not continue developing their first language and instead focus on developing the majority language as their second language, which can affect the



connection between children and their families (Wong Fillmore, 1991), their cultural identity (Cummins, 2001), and their second language development (Genesee, 2008).

The extent of language loss varies depending on the value families, communities, and school place on maintaining the home language. Dr. Lily Wong Fillmore, a researcher on education of language minority students in American schools, (2000) argues internal and external forces in homes, schools, and communities pressure minority children to discontinue using their home language. Not being proficient in English is considered problematic in our society and can be challenging for individuals to achieve academically. Maintaining one's home language is often not highly valued and viewed as a problem rather than as a resource (Cummins, 2000). Ironically, learning a second language is typically viewed as an asset to one's identity and economic future for native English speakers.

Similar patterns are indicated in the case of American Sign Language. Deaf children are often denied or discouraged to include American Sign Language in their lives; meanwhile, it is acceptable for native English-speaking children or adults to learn American Sign Language as their second language. The number of hearing students taking American Sign Language as a foreign language in secondary schools and college has increased dramatically in the last twenty years (Rosen, 2008). While there are efforts to increase official recognition of ASL as a language in the United States through law, some of the proposed state legislation is not designed to aid deaf people, but hearing people (Reagan, 2011). For instance, most of the legislation to pass ASL as an official language is mainly concerned with recognizing ASL as a foreign language for hearing

English-speaking students rather than with recognizing language rights for deaf people (Reagan, 2011). Educational linguist Timothy Reagan (2011) argues:

The language rights of deaf people continue to be dealt with not as linguistic rights per se but rather through disability legislation (such as Americans with Disabilities Act, Section 504 of the Rehabilitation Act of 1982, and the Individuals with Disabilities Act [IDEA] of 1975), and almost always in terms of the *rights to an interpreter* rather than to specific and meaningful language rights with respect to ASL (emphasis in original text, p. 613).

To express their opposition to the devaluation of ASL, many Deaf and linguistic advocates of the language-as-a-right stance declared that denying young deaf children access to sign language is a violation of human's rights (Grosjean, 2001; Kermit, 2010; Ladd, 2007; Skutnabb-Kangas, 2003). Dr. Tove Skutnabb-Kangas, a linguistic human rights advocate, (2003) argues that the Deaf community is a linguistic minority and, therefore, sign language is their natural mother tongue. She claims using oralism to educate deaf children is linguistic genocide as it promotes subtractive teaching. In subtractive teaching, the dominant language, in this case, spoken English, is the medium of instruction, thereby replacing deaf children's natural mother tongue. Some argue oralism is addressed in the United Nations International Convention on the Prevention and Punishment of the Crime of Genocide's definition of genocide when they say,

“forcibly transferring children of the group to another group,” and “causing serious bodily or mental harm to members of the group,” (Ladd 2007; Skutnabb-Kangas, 2003). Under oralism, deaf children are forced into another language group that speaks a different dominant language from their mother tongue. Subtractive education may also cause mental harm to deaf children since it inherently withholds an accessible language (Ladd, 2007; Skutnabb-Kangas, 2003) Norwegian disability scholar Patrick Kermit (2010) argues that spoken language, alone, as a modality for all children with cochlear implants is not ethical:

To give speech priority, again conveys the signal that speech is more desirable than signing. Those children gaining little from their implants hence risk a double loss: First, they may be unnecessarily delayed in their lingual development due to exposure only to the language with the modality least suitable for them (because they cannot hear very well). Secondly, in addition to facing the challenge of having their language development delayed, those children who start learning sign language after having the monolingual attempt terminated, must grow up knowing that they did not achieve what others considered their primary objective (p. 164).

Nover (1995) claims more bilingual educators and researchers involved in deaf education are taking an active role in challenging ASL-as-a-problem policies by raising standards

on ASL as a language. More programs and schools for deaf children are establishing language policies that advocate for a bilingual education in ASL and English. It is a deaf child's linguistic right to first, have access to their mother tongue and second, to other languages through bilingual approaches (Grosjean, 2001). Grosjean (2001) stressed:

Every deaf child, whatever the level of his/her hearing loss, should have the right to grow up bilingual. By knowing and using both a sign language and an oral language (in its written, and when possible, in its spoken modality), the child will attain his/her full cognitive, linguistic, and social capabilities (p. 110).

People who ascribe to the language-as-a-resource philosophy believe American Sign Language is a cultural resource that allows deaf people to achieve linguistically. Research and educators both recognize the benefits of ASL in enhancing deaf children's English skills. Meier (1991) studied the early language acquisition of deaf children and concluded that deaf children who are exposed to a language during a critical period of language acquisition were able to develop native competence in a language. Sign language acquisition expert, Dr. Rachel Mayberry (2007) conducted three separate experiments focusing on the role of one's early linguistic experience in second language learning and examining how one's age of acquisition of the first language affects the acquisition of the second language learning. Findings were consistent – regardless of deafness, the age of one's first language acquisition is a determining factor in one's

successful acquisition of a second language. Delayed first language acquisition affected the participants' second language learning which indicates first language and second language acquisition are interdependent.

Multiple studies reveal that ASL facilitates English literacy development (Akamatsu & Armour, 1987; Hoffmeister, 2000; Mayberry, del Giudice, & Lieberman, 2010; Padden & Ramsey, 2000; Prinz & Strong, 1998; Wilbur, 2000). For example, Wilbur (2000) found that knowing ASL as a first language acts as a resource to learning English as a second language through transfer of general knowledge. To become literate, children must to have conversational fluency in their language and transfer this knowledge to reading and writing. Sign language linguists, Padden & Ramsey (2000) found that deaf children and deaf parents with an early exposure to ASL had higher reading achievement scores. Hoffmeister, a scholar in deaf education (2000) found that deaf students' knowledge of ASL is related to reading development and that deaf students who had greater ASL knowledge scored higher on the SAT reading comprehension test (Hoffmeister, 2000). In a study by sign language acquisition researchers, Strong and Prinz (2000) also identified that deaf children's ASL abilities support English literacy and, due to their exposure to ASL, deaf children with deaf parents perform better than deaf children with hearing parents. Mayberry and colleagues (2010) completed a meta-analysis study on deaf readers' awareness of spoken-language phonological coding in relation to their reading achievement. The results indicated that spoken-language phonological coding moderately predicts a deaf individuals' reading achievement, but they do not usually rely on spoken-language phonological coding to read.

Human brains have the capacity to readily acquire both sign and spoken language without harm to the development of either language (Kovelman et al., 2009; Petitto et al., 2001, 2009; Petitto & Kovelman, 2003). Dr. Laura Ann Petitto & Dr. Ioulia Kovelman, who are cognitive neuroscientists, (2003) compared bilinguals who acquired two spoken languages and who acquired one signed and one spoken language to detect if the latter form of bilingualism causes developmental language delays or language confusion. The results indicate that all bilinguals demonstrate similar linguistic milestones as monolingual children; therefore, the authors concluded that learning more than one language does not cause developmental delays or linguistic confusion (Petitto & Holowka, 2002).

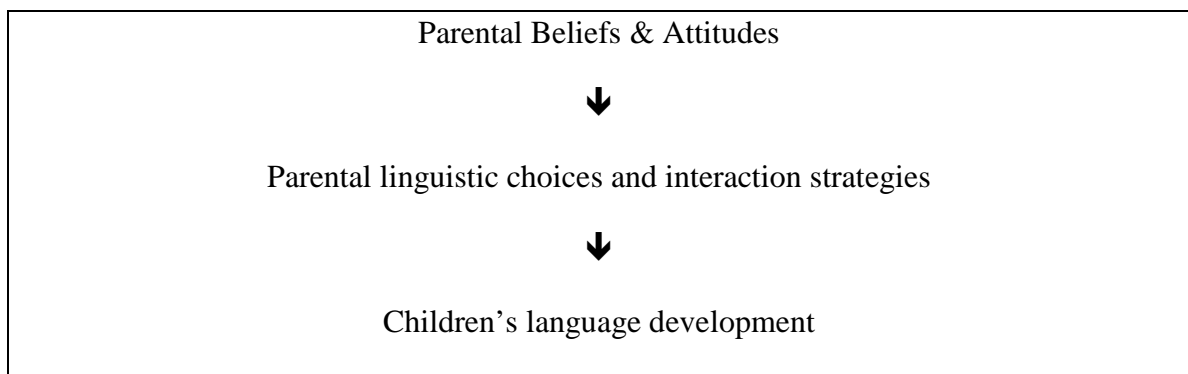
Research has also shown hearing children benefit from learning signs during their early years to enhance their language, literacy, and cognitive development (Daniels, 2001; Goodwyn, Acredolo, and Brown, 2000; Volterra, Iverson & Castrataro, 2006). Most hearing, English-speaking parents who teach their hearing babies sign language recognize ASL as a resource to promote early communication between parents and child. Pizer and colleagues (2007) claim hearing parents' decision to sign with their hearing babies are based on ideologies about language and child rearing, rather than learning ASL to communicate with the Deaf community. Families in the study reported signing with their babies in hopes of improving parent-child communication and increasing their child's ability to express feelings, needs, and thoughts. Signs are seen as a temporary tool for hearing babies before they fully transition to developing spoken language.

When most families discover their children's hearing loss, the first person they turn to is either a doctor or an audiologist (Young et al., 2006). Many hearing parents are misinformed, thinking a child's hearing and language issues are easily solved by having hearing aids or cochlear implants, so they may rely on professionals for guidance (Blackburn, 2000; Young, 1999; Young et al., 2006). Dr. Alys Young (1999), social work professor in UK, argues, "Parental grief reactions are produced by the attitudes of professionals who, their own assumptions of deafness as tragedy, promote those responses of loss," (p. 158). Professionals who hold language-as-a-problem orientations may also influence how families respond to having a deaf child (Nover 1995; Reagan, 2011). Professionals typically recommend deaf children get hearing aids or cochlear implants in order to develop spoken English skills, but rarely mention or recommend exposing children to American Sign Language. Doctors and audiologists often do not know about Deaf culture and its language and, therefore, are reluctant to consider sign language as an alternative means to support deaf children (Lane, 2005). As a result, families are not encouraged to sign with their cochlear implanted children (Hintermair & Albertini, 2005).

### **Family Language Policy**

The recent study of family's language policy explored families' language practices, language beliefs or ideologies, and language management which stemmed from research on language policy and language acquisition (Spolsky, 2004, 2012). Sociolinguist Bernard Spolsky (2012) argues families are considered a domain or level where "language management" occurs within a group that is similar to other domains like

the Army, business, media, education, and religion (p. 2153). Participants within each domain have their own values and beliefs about what and how language is used. In families, parents are the typically the key participants who determine language practices which may influence the language use within the family. Families' language policies may be established overtly or explicitly by the families and are likely to occur within family communication. Families' decisions may be also influenced by their own personal experiences with language (King & Fogle, 2006). Family language policies are developed and shaped by families' beliefs and values about language. Societal beliefs and beliefs about parenting may also influence families' decisions about language choice. Sociolinguistics Kendall King, Lyn Fogle & Aubrey Logan-Terry (2009) argue family language policies "[play a] critical role in parenting practices and developmental outcomes for children" (p. 910). Bilingual acquisition linguist, De Houwer (1999, as cited in King, Fogle, & Logan-Terry, 2008) proposed the relationship among parental beliefs, practices, and outcomes in bilingualism for young children as follows:



*Figure 1.* Family Language Policy Framework (De Houwer, 1999 as cited in King, Fogle, & Logan-Terry, 2008). It was noted these processes are not directional but is interactive among all aspects.



## **Definitions of Bilingualism**

Bilingualism can be interpreted in several ways. As Grosjean (2008) simply points out, bilinguals are defined as individuals who use two or more languages on a daily basis. Baker (2001) added that there is a distinction between bilingual ability and bilingual usage that may reflect different types of bilinguals. Some bilinguals may differ in the frequency and the function in using both languages.

Bilingualism is either viewed from a monolingual or holistic perspective (Grosjean, 2008). From a monolingual perspective, it is believed that bilinguals have two separate language systems. In this view, each language is autonomous from the other and proficiency in each language is evaluated separately. From a holistic view of bilingualism, development of both languages are integrated. Bilinguals interact with both languages on daily basis and may use them separately or together for different purposes. Grosjean (2008) proposed a complementary principle that describes how bilinguals develop and use their languages for different purposes in their daily lives, Bilinguals can achieve dominance or balance in the languages depending on how they develop and use them.

Deaf bilinguals are dual language users, usually with a minority language in sign language and a majority language in a written and sometimes spoken language (Grosjean, 2010). Deaf and hearing bilinguals both demonstrate diversity in their functions and abilities to use two or more languages. Some are fluent in both languages but rarely use both and some are not fluent in both languages, but use both languages frequently (Baker, 2001; Nover, Christensen, & Cheng, 1998).

Early access to natural language and the diverse use of modalities separate hearing and deaf bilinguals. Unlike hearing bilinguals, deaf children are often not given full access to their natural language early in life. As mentioned in the introduction, 95% of deaf children come from hearing families who are not often fluent in sign language, much unlike deaf children with deaf parents who have complete and ready access to a linguistic model. Hearing parents can benefit from taking sign language classes and being around deaf adults (Hyde & Punch, 2011).

Deaf bilinguals also differ from hearing bilinguals because they use two different language modalities: signed and spoken (Grosjean, 2010). Dr. Colin Baker (2001) suggests there are four basic language abilities: oracy and literacy; listening; speaking; and reading and writing. Nover and his colleagues (1998) added a third linguistic competency to the oracy and literacy categories: “signacy”. Signacy is defined as “watching or attending signs and expressing signs”. This additional language ability led to the development of a bilingual framework for deaf children’s education including signacy, oracy, and literacy (Nover et al., 1998). Cummins (2006) discusses:

For Deaf children the teaching of ASL language arts within a bilingual/bicultural program serves the same function of developing and deepening students’ conceptual foundation and providing them with a potent tool for thinking and problem-solving. If there is a transfer of this cognitive power to English, this represents an additional bonus rather than the primary for developing students’ ASL conceptual and academic

proficiency (p. 2).

The principle of this interdependence hypothesis, as developed by Cummins (1979), indicates one's ability to transfer conceptual and linguistic proficiency from their first language to their second language. Studies show children who are exposed to ASL and English at early ages achieve similar language milestones as hearing monolinguals and bilinguals (Petitto & Holowka, 2002).

**Bimodal Bilingualism.** Individuals who have access to both visual and auditory languages, including through those who have auditory access as a result of cochlear implants, can be considered bimodal bilinguals. Bimodal bilinguals use two different languages in two modes, spoken and signed. Bimodal bilingualism can be defined in several ways; it may mean simultaneous production of two languages: “code-blending”, or alternating between both languages: “code-switching” (Emmorey, Borinstein, Thompson & Gollan, 2008). Cognitive neuroscientist Dr. Karen Emmorey and her colleagues (2008) stressed that bimodal bilingualism differs from simultaneous communication or Simcom:

Simcom is a communication system frequently used by educators the deaf, and the goal is to produce grammatical correct spoken English and ASL at the same time...Simcom differs from natural bimodal language because it is forced (both language must be produced concurrently), and English

invariably provides the syntactic frame, particularly within educational settings. (p. 45)

Current studies on bimodal bilinguals mostly investigate the bilingual development of hearing children of deaf adults (CODA) who began learning signed and spoken language at birth (Berent, 2004; Emmorey et al., 2008; Emmorey & McCullough, 2009; Pettito et al., 2001; Pettito, 2003). While children who are CODAs cannot directly be compared with deaf children who have cochlear implants and acquired ASL at birth, there are some possibilities that both groups share similar bilingual practices. CODAs in the study frequently code-blended both languages, using English words and ASL signs simultaneously. Pettito and her colleagues' study showed signing-speaking bilinguals mixed both languages like hearing bilinguals who acquired two spoken languages. The rates of language mixing in children directly relates to higher mixing rates of their parents. The difference between both groups is that signing-speaking bilinguals simultaneously mix both sign and speech at the same time, "in semantically principled and highly constrained ways" (Pettito et al., 2001, p. 491).

Several educators of the deaf adopted the definition of bimodal bilingual to facilitate the use of two modes, spoken and signed, in educational settings (Nussbaum et al., 2012) in effort to reframe the traditional bilingual-bicultural framework which mainly focuses on using ASL as the major language of instruction and reading and writing in English (Nover, 1995; Nover et al., 1998). The new framework addresses ASL and English development and includes spoken English for those who can to develop

oral/auditory abilities (Gárate, 2011; Nover et al., 1998). Bimodal bilingualism facilitates a multisensory approach that is additive rather than subtractive, which enhances bilingual development in both languages.

### **Cultural Identity**

Bilinguals may also be part of two or more cultures – bicultural. Grosjean (2008) purports bicultural individuals participate in two or more cultures at varying degrees. As they participate in their cultures, they adapt their attitudes and cultural elements, like behavior, beliefs, and values, to reflect the expectations of the particular culture. They also blend cultural elements from both cultures. Cultural dominance between two or more cultures may vary among bicultural people, depending on many factors in their lives. Grosjean (2008) believes establishing a cultural identity is a crucial developmental process for children and adolescents. Accepting one's cultural identity depends on numerous factors such as personal history and knowledge of language and culture.

Deaf bilinguals vary in developing their identity in the hearing world, Deaf world, or both worlds, depending on a range of factors (Bat-Chava, 2000; Glickman & Carey, 1993; Grosjean, 2008; Weinberg & Sterritt, 1986). One's family and school may have an effect on the development of a deaf person's cultural identity. In most situations, deaf children who come from Deaf parents tend to readily identify as being Deaf and it is a positive association. Hearing families who view deafness as a disability and resist learning sign language may negatively affect their deaf child's self-esteem and cultural identification.

Psychologist Yael Bat-Chava (2000) identifies three common identities among deaf people: 1) culturally hearing identity; 2) culturally Deaf identity; and 3) bicultural identity. The social identity theory says “an individual’s mobility and social change strategies impact how they identify as a part of a particular group” (Bat-Chava, 2000, p. 420). Deaf people may undergo many stages of cultural identity throughout their lives. One’s age of becoming deaf, having hearing or Deaf parents, educational and social experiences are just a few of the many factors influencing one’s Deaf cultural identity development. Deaf people who have a positive perception of both cultures, hearing and Deaf, appear to have a generally positive self-esteem. Bat-Chava (1993) performed a meta-analytic review of forty-two empirical studies and dissertations written and/or conducted between 1861 and 1993 on deaf people’s self-esteem. The results suggest deaf people have lower self-esteem than hearing people due to society’s perceived negative attitudes towards them. Deaf people whose parents were Deaf and used sign language indicated higher self-esteem compared to deaf people with hearing parents who used oral communication. Bat-Chava’s study (1994) shows how group identification contributes to one’s self-esteem. Deaf people whose family and school regularly expose them to sign language and other deaf people are more likely to identify with the Deaf community and have a positive self-esteem.

Several studies explore deaf and hard of hearing people’s cultural identity of being Deaf, hearing, or both and find deaf children who have dual identities (Deaf and hearing) typically have positive attitudes about being Deaf (Bat-Chava, 1994; Glickman & Carey, 1993; Weinberg & Sherritt, 1986). Psychologists Glickman & Carey (1993)

developed an instrument, the Deaf Identity Development Scale, to measure how deaf people identify with the Deaf community and Deaf culture. Four stages of Deaf cultural identities are proposed: culturally hearing (those who view deafness as a disability); culturally marginal (those who are unsure about their feelings about deafness); immersion (those who perceive being deaf as cultural); and bicultural (those who have positive views on hearing and Deaf communities). In Psychologists Weinberg & Sterritt's (1986) study, students who identified with both groups, Deaf and hearing, demonstrated more positive self-evaluation, performed better academically, and had greater perceived family acceptance than deaf students who identified as either hearing or deaf. Deaf students in the study who identified as only Deaf had better outcomes than those who identified as only hearing.

Several studies indicate that children who have cochlear implants adopt a bicultural identity (Most, Wiesel, & Blitzer, 2007; Wald & Knutson, 2000). Wald & Knutson (2002) scored deaf adolescents with and without cochlear implants on Glickman's Deaf Identity Development Scale to determine their cultural identity. Results showed both groups had similar identity beliefs and valued their bicultural identity. Wiesel & Blitzer (2007) also used Glickman's identity scale to study the relationship between identity orientation and attitudes towards cochlear implants with Deaf and hard of hearing adolescents. Deaf adolescents who had stronger bicultural identities also had more positive attitudes towards cochlear implants than those who had stronger Deaf identities. As a result of these findings, deaf children who have cochlear implants are encouraged to be exposed to Deaf culture so they develop positive attitudes about being

Deaf and increase their self-esteem. Professionals and parents should be encouraged to provide opportunities for children with cochlear implants to interact with the Deaf and hearing communities in order to develop a positive bicultural identity (Hintermair, 2006; Hyde & Punch, 2011; Young, 1999).

### **Psychosocial Effects**

Several studies which explored the psychosocial effects cochlear implants have on children indicate that implants provide potential as well as limitations for deaf children to interact with their hearing peers (Bat-Chava & Deignan, 2001; Christiansen & Leigh, 2002; Martin, Bat-Chava, Lalwani, & Waltzman, 2011; Percy-Smith et al., 2008). As indicated by the parents in the studies, children with cochlear implants exhibited improved quality of life, positive self-esteem, and confidence compared to before they received their implants. Parents in the studies expressed feeling that cochlear implants helped their children increase their abilities to use spoken language, making it possible for some of them to socialize with their hearing peers. However, there are limitations to relying on parental reports due to the possibility of overestimation on their deaf children's experiences with cochlear implants. (Bat-Chava & Deignan, 2001). Several studies indicated it was established that children's level of social well-being is associated with their speech understanding, speech production, and vocabulary (Percy-Smith et al., 2008). Those who have difficulties in communicating may have challenges interacting with their hearing peers. In an observational study with a small sample of children with cochlear implants, Martin and her colleagues (2011) observed that one-to-one interaction with hearing peers was less challenging for most individuals with cochlear implants



whereas socializing with two or more hearing peers was more challenging for most individuals. In another observational study by psychologists Boyd, Knutson & Dahlstrom (2000), results show that children with cochlear implants in the study had difficulties in peer group entry and interactions with their hearing peers. Inclusion of sign language for communication between families, teachers, and children, themselves, was valued and recommended (Bat-Chava & Deignan, 2001; Hyde & Punch, 2011; Preisler, Tvingstedt & Ahlström, 2005).

### **Language Development in Bilinguals**

There are similarities and differences between first and second language learning. First and second language learners follow similar stages of development (McLaughlin, 1987); however, language acquisition in younger second language learners often differs from older second language learners (Nicholas & Lightbown, 2008). Children acquire language differently than adults until the age of seven, then, language is acquired at the same rate as adults (Genesee, Paradis, & Crago, 2004). Cummins (1979) proposed a theory of developing two kinds of language proficiency; the first kind is basic interpersonal communicative skills (BICS) and the second kind is cognitive academic language proficiency (CALP). BICS are language skills needed for social purposes and are context embedded and are not cognitively demanding. Whereas, CALP requires academic learning and the language is more cognitively demanding and the context is reduced. Cummins (1979) argued that different time periods are required to develop BICS and CALP. Typically, one may develop BICS within about two years after the

second language was introduced and take around five years to catch up to native speakers in developing academic aspects of the second language.

There are several differences in language development between monolinguals and bilinguals: in the amount of vocabulary in one or both languages (Nicoladis & Genesee, 1996); in the language transfer between the first and second languages (Yoshida, 2008); and in the code mixing, alternating production between both languages (Genesee, 2008). Young bilinguals tend to have a smaller vocabulary in each language compared to monolinguals; however, combining the vocabulary from both languages is similar to the size of a monolingual's vocabulary. Bilinguals have the ability to transfer knowledge from their first language when learning concepts in a second language. When learning two or more languages, a natural part of bilingual development is for children to code switch between both languages, depending on the context of the conversation (Genesee et al., 2004).

Much evidence supports that knowing sign language does not interfere with spoken language development (Jiménez et al., 2009; Preisler et al., 2002; Yoshinaga-Itano, 2006). Swedish psychologist Preisler and colleagues (2002) conducted a longitudinal study of deaf preschoolers with cochlear implants in Sweden that explored patterns of communication in natural interactions between children and their parents, teachers, and peers. The children in the study received their cochlear implants when they were between one and four years old. The analyses of the interactions indicated that children who had the best oral skills were also well-versed in a signed language (Preisler et al., 2002). Children who used sign language in the study demonstrated an awareness

of the language's communicative function by incorporating several strategies to clarify misunderstandings such as asking for repetitions or for more information.

In her case study on language outcomes for deaf children with cochlear implants, audiologist and researcher Dr. Christina Yoshinaga-Itano (2006) reported that children's spoken language development benefitted from knowing sign language. Children in the study had substantial signing vocabularies before their cochlear implantation and increased spoken vocabularies very soon after their implantation. These children were able to transmit their first-language, sign, into their second language, spoken language, and increase their spoken vocabulary in a short time.

Psychologists from Spain, Jiménez, Pino & Herruzo (2009) compared two groups of deaf children with cochlear implants on their speech intelligibility, receptive vocabulary, and psycho-linguistic skills. Children in the first group were educated in spoken English and the second group of children was educated through bilingual approaches in spoken and signed languages. It was not clear about what bilingual approaches were used, for example, whether both languages were used simultaneously or separately. The results show the bilingual group as having better verbal and manual expressions (specifically hand gestures) while expressing in spoken language, comprehension of visual symbols, and visual fluency (Jiménez et al., 2009). They also had better results in verbal fluency and larger vocabularies than the spoken groups. However, the spoken groups performed better in speech intelligibility, auditory reception, and grammatical closure. They also outperformed the bilingual group in pronunciation, oral comprehension, and grammatical rules. There were no significant differences in

their receptive vocabulary, social and communicative skills, visual reception, auditory and visual association, visual closure, and visual or auditory sequential memory. The study found the overall differences in speech development in both groups to be insignificant; however, it recognized that the bilingual group had better verbal fluency, meaning they have greater vocabularies than the spoken group (Jiménez et al., 2009).

### **Socio-cultural Factors**

Language input, language status, access to literacy, family language use, and community support are just a few of the socio-cultural factors impacting a child's bilingual development, with language input having the greatest effect (Pearson, 2007). Children must continue to learn and use their first language in order to become proficient in their first and second languages. Having a positive attitude about bilingualism can also increase language proficiency in children's first and second languages.

Psychologist Lev Vygotsky's socio-cultural theory (1986) says learning occurs through social interaction; therefore, cultural beliefs and experiences are transmitted from families to children. Vygotsky's theory states that cultural development in young children occurs twice, first, socially and then, psychologically. In this sense, children first learn from others with more experience and knowledge, and, later on, children become more independent and instigate their own learning activities (John-Steiner & Mahn, 1996).

For deaf children, becoming bilingual in both ASL and English requires hearing families to adopt a cultural-linguistic model of deafness by recognizing sign language as a natural and fully-grammatical language used by the Deaf community (Young, 1999). Hearing parents should be taught to sign, maintain contact with Deaf adults, and learn

about Deaf culture, including what it means to be Deaf (Hyde & Punch, 2011). Grosjean (2001) argues deaf children must have five things in order to accomplish and maintain bilingualism: 1) experience early communication with parents and family members; 2) development of cognitive abilities in infancy; 3) ability to acquire world knowledge through language; 4) open communication with their surrounding world; and 5) acculturation into two worlds.

### **Families' Decisions on Language Choices**

Families face special challenges in making language-related choices for their deaf children due to the uniqueness of being deaf (Archbold et al., 2008; Archbold & Wheeler, 2010; Meadows-Orlans et al., 2003). The greatest challenge families with deaf children face is to choose which method of communication is most appropriate for their deaf child (Eleweke & Rodda, 2000; Stredler-Brown, 2010). Families making decisions, like whether or not to include sign language in a deaf child's language education, often overlook the importance of timing -- providing deaf children with an accessible language in a timely manner is optimal for cognitive development (Archbold & Wheeler, 2010; Bailes, Erting, Erting, & Thumann-Prezioso, 2009; Snoddon, 2008; Young, 2010). Spoken language may not be fully accessible to deaf children, and that may lead to language delays. Families need to consider the importance of providing deaf children with full, accessible, and natural language as early as possible in order to equip their child for academic achievement (Goldwin-Meadow & Mayberry, 2001). A bilingual approach, using two language and two modalities (sign and spoken), can safeguard language acquisition in both languages. Families are rarely well informed about the benefits of

bilingualism (signed and spoken languages) for deaf children with cochlear implants (Hyde et al., 2010). Families should know how cochlear implants affect a child's educational and social-emotional development, both positively and negatively.

Universal newborn hearing screening identifies babies' hearing levels so early intervention services can be provided, if needed. Based on a recent statement from the Joint Committee on Infant Hearing in 2007 (JCIH, 2007), early hearing detection and intervention is essential to "maximize linguistic competence and literacy development" in deaf and hard of hearing children (p. 898). Deaf children who receive early intervention services and have a high level of family involvement have better language development than children who are not enrolled in early intervention programs (Moeller, 2000; Yoshinaga-Itano, 2003). The JCIH finds that infants who are identified as deaf and receive immediate and appropriate intervention within the first six months of life perform statistically significantly better than infants who are identified with hearing difficulties later.

Even though a child's deafness can now be detected at the earliest months of life, there are many challenges facing hearing parents of a deaf child (Young, 2010). Young (2010) argues the implementation of early hearing detection and intervention services is more medically driven than parent driven. In the past, parents were often the ones who identified their child's deafness; in this sense, it could be said that they owned the identification process. Today, one's hearing level is detected through medical procedures, which may influence a family's view of deafness. The medical perspective and discourse may be based on a deficit model of deafness. Families are frequently encouraged to opt

for cochlear implants after detection of deafness in order to “fix the problem” without considering other alternatives (Hintermair & Albertini, 2005; Lloyd & Uniacke, 2007; Young, 2010). German psychologists for deaf children Hintermair & Albertini (2005) argue that doctors and other medical professionals have a sense of urgency in providing deaf babies early access to auditory sounds, but may not consider the need to provide deaf children with “comprehensible language input, whether auditory or visual, during the critical period of language development,” (p. 188). Skutnabb-Kangas (2003) believes families often misunderstand the functions of cochlear implants and that can possibly lead to subtractive learning situations such as removing sign language from a child’s education. Early intervention services need to provide comprehensive information and appropriate support for families with deaf children in order to make informed decisions (Young, 2010).

Several studies address the variety of factors impacting a family’s decisions when it comes to making language choices for their deaf child (Eleweke & Rodda, 2000; Li et al., 2003; Meadows-Orlans et al., 2003; Young & Tattersall, 2007; Young et al., 2006). Canadian scholars Eleweke & Rodda (2000) interviewed two families in order to explore what factors influence a family’s decision when choosing a communication mode for their deaf child. One family chose British Sign Language (BSL) and the other family chose an aural/oral approach. From the interviews, four themes emerged, showing the following strongly influenced the families: a) the information they received from professionals regarding communication options; b) the family’s opinions on assistive technology; c) professionals’ attitudes about the variety of communication modes; and d)

the quality and availability of support services. The families in the study did not receive accurate and comprehensive information about deafness and opportunities for deaf children from professionals; therefore, they were unable to make informed choices (Eleweke & Rodda, 2000). Young and her team (2006) stressed that families need to develop an understanding, not just knowledge, of the possible risks and benefits of each communication approach. While no one can predict a child's language development path, limiting resources can make anticipating the bumps in the road more difficult. Professionals and families need to consider an individual's social and personal factors, such as culture, beliefs, values, and financial circumstances, when selecting an appropriate communication approach. In most cases, hearing parents are not familiar with deafness and Deaf culture. They depend on professionals' opinions and experiences to help make decisions for their family (Li et al., 2003). As a result, families with deaf children often receive incomplete information about communication modalities with no "definitive evidence establishing the connection between long-term outcomes, child characteristics, and recommended communication and amplification modality," (Li et al., p. 163).

In a survey of eighty-three parents, the majority of respondents said their child's degree of hearing loss was the most influential factor in choosing which communication mode they wanted to use with their children -- parents mostly desired for their children to speak (Li et al., 2003).

Professionals may make the decision-making process overly simplified for families by offering the only approach with which they are familiar (Stredler-Brown,



2010). Families often feel pressure to select one modality and stick with it for the child's entire life, when, in reality, what is appropriate at one point in a child's developmental life may not be appropriate at another point.

Deaf families' experiences with communication options for their deaf children is almost non-existent in literature, possibly because it is commonly assumed that deaf families choose to sign only with their children. In the National Parent Project (Meadows-Orlans et al., 2003), deaf parents had high expectations for their children and actively fought for them to have the same choices and opportunities as all hearing children. Ten deaf and hard of hearing families were interviewed for the study. All of them communicated with their deaf children through ASL or PSE (Pidgin Signed English) and expected their children to develop English literacy. Some parents in the study also encouraged their children to develop spoken language skills through speech therapy.

### **Deaf Families and their Linguistic Support**

Deaf families, especially deaf mothers, maintain positive and nurturing interactions with their infants and young deaf children throughout their language development (Meadows-Orlans et al., 2004; Spencer & Harris, 2005; Swisher, 2000). The practices learned from deaf mothers and deaf children dyads have been helpful for hearing families, as well as teachers of the deaf, in adapting their interactions with deaf infants and young children. Deaf mothers have knowledge and experience communicating in the visual mode from their own personal and cultural experiences as deaf individuals (Swisher, 2000). By being fluent at visual communication, like signing, using gestures, facial expressions, maintaining eye contact, and attending to visual cues,

deaf mothers can intuitively pass on these cultural practices - also called “funds of knowledge” (González, Moll, & Amanti, 2005) - to their deaf children (Bailes et al., 2009). Mastering visual attention and communication skills is essential for deaf children to receive linguistic input and to participate in signed conversation (Swisher, 2000). Deaf families in the study used the following cultural practices when communicating with infants and young children: tapping and touching the child’s feet and hands in order to get or maintain attention (Maestas y Moores, 1980; Swisher, 2000); waiting for mutual eye contact from the child before responding (Spencer, Bodner-Johnson, & Gutfreund, 1992); positioning the infant’s body to point towards the object of interest (Maestas y Moores, 1980); using positive and interesting facial expressions (Erting, Prezioso, & Hynes, 1990); and using a repetition of signs (Spencer et al., 1992).

Several studies explore the quality and the effectiveness of interactions between deaf children and their hearing or deaf mothers (Koester & Lahti-Harper, 2010; Loots et al., 2005; Spencer & Harris, 2005; Volterra et al., 2006). The results repeatedly demonstrate that deaf mothers more effectively support their deaf children in their communication and expression than hearing mothers.

Psychologists Koester & Lahti-Haper (2010) investigated intuitive parenting behaviors during the first 18 months of a child’s life with four different types of mother-infant dyad groups: a) deaf mothers/deaf infants; b) deaf mothers/hearing infants; c) hearing mothers /deaf infants; and d) hearing mothers/hearing infants. The results showed that deaf mothers incorporated more modifications of visual-gestural communication with their infants than the hearing mothers in the study. Deaf mothers also used more

visual-gestural, attention-getting strategies more often than the hearing mothers due to their familiarity and positive experiences with these strategies.

Psychologists Loots, Devisé, & Jacquet's (2005) had similar findings in their study conducted in Flanders (Belgium) on the impact of visual communication on the quality of early interactions between deaf children and their parents. The research team compared three groups of parent-child dyads differing in visual-tactile communication strategies: 1) hearing parents using oral approach in Dutch; 2) hearing parents using a Total Communication approach -- a combination of communication modes such as speech, speech reading, auditory, written, signs, and visual aid depending on child's abilities and needs; and 3) deaf parents using Flemish Sign Language. Deaf parents in the study displayed higher-quality parent-infant interactions and reciprocal exchanges than other dyads in the study (Loots et al., 2005).

When it comes to communicational skills and development, deaf children from deaf families are typically on par with their hearing peers, but often farther ahead of deaf children from hearing families (Bailes et al., 2009). Deaf children from deaf families are exposed to rich language and visual attention skills that are essential to their language development.

### **Efficacy and Outcomes of Cochlear Implants**

Most of the studies related to cochlear implants and language outcomes reviewed are generally clinical in nature, mostly focusing on speech perception and speech production skills and not reflecting all aspects of language development (Beadle et al., 2005, Marschark et al., 2007). Also, the studies mainly focus on the medical aspects of

children with cochlear implants and do not address cultural aspects. Additionally, some studies of children who sign and have cochlear implants rarely define the type of signed language that is used. Also, several sign-inclusive studies tend to not use ASL fully, but uses a mixture of sign and spoken like simultaneous communication or other English-based forms.

Cochlear implantation has improved the development of auditory and spoken language skills in deaf children (Geers, 2002; Wie, Falkenberg, Tvete, & Tomblin, 2007). However, a cochlear implant is not the same as normal hearing and typically children with implants still need support services (Christiansen & Leigh, 2004, 2005). For one, cochlear implants do “not provide support for highly adaptive robust speech perception and spoken language processing routinely observed in hearing listeners under a wide range of challenging listening conditions,” (Pisoni, Conway, Kronenberger, Horn, Karpicke, & Henning, 2008, p. 58).

The United States Food and Drug Administration (FDA) approves cochlear implantation for children as young as 12 months old and older (2010). The FDA outlined possible benefits and risks from the surgical implant procedure on their website. The possible benefits from cochlear implants include increasing the ability to perceive and understand sounds, understand speech without lip reading, make telephone calls, watch TV without captioning easily, and enjoy music. Examples of risks related to the surgery include injury to facial nerve, meningitis, cerebrospinal fluid leakage, perilymph fluid leak, and infection. The risks associated with the use of cochlear implants include the possibility for the equipment to fail and/or non-restoration of one’s full hearing abilities

and the inability to undergo some medical examinations like MRI or electrical surgeries. The cochlear implant runs on batteries and they need to be replaced or recharged on regular basis. Other risks include issues of static electricity and hearing strange sounds caused by the implant's interaction with magnetic fields.

Cochlear implants do not only cause possible physical harm, but also possible cognitive, social, and linguistic harms (Humphries et al., 2012). Humphries and his colleagues (2012) argue the practices performed by health professionals tend not to promote the use of sign language and give false impressions of cochlear implant technology which leads to the possibility of linguistic deprivation. Humphries and colleagues proposed health professionals to recommend sign language for deaf children with their families, to be explicit about expectations from cochlear implants, to improve services for deaf children, and to do more studies on children's outcomes with cochlear implants to minimize the possible cognitive and linguistic harms with cochlear implantation.

Cochlear implants help deaf children gain spoken language and auditory skills (Geers, 2002; Geers, Sephar & Sedey, 2002; Spencer, 2009). However, evidence shows a child's spoken language development depends on a number of factors (Fagan et al., 2007; Hawker et al., 2008; Inscoe et al., 2009; Marschark et al., 2007; Spencer, 2004a, 2009): the age of cochlear implantation (Geers, 2002; McConkey-Robbins, Koch, Osberger, Zimmerman-Phillips, & Kishon-Rabin, 2004); the frequency of use (Geers, 2002; Nicholas & Geers, 2007; Jiménez et al, 2009; Wie et al., 2007); the type of one's communication modalities (Connor, Hieber, Arts, & Zwolan, 2000; Jiménez et al., 2009);

the hearing and linguistic experiences of an individual pre-implantation (Spencer, 2004a); the cognitive abilities of the individual (Pisoni et al., 2008); and the family's involvement and support (Sarant, Holt, Dowell, Rickards, & Blamey, 2009). In several studies, more than half of children with cochlear implants performed below average on their spoken language measures (Fagan et al., 2007; Inscoe et al., 2009). With many possible factors, it is difficult to rely on cochlear implantation as a sole solution for deaf children to develop spoken skills or even a language (Kermit, 2010).

When a child receives cochlear implants, it cannot be expected that the child will automatically function like his or her hearing peers. All deaf children with cochlear implants vary in levels of auditory and spoken skills. In McConkey-Robbins, a speech pathologist, and colleagues' (McConkey-Robbins et al., 2004) study on the impact age of implantation has on ultimate results, younger children who were implanted in the study acquired auditory skills closer to their hearing peers than older children. The earlier a child is implanted, it appears, their hearing abilities will be developed quicker than children who receive cochlear implants at later ages. Cochlear implant researchers, Nicholas & Geers (2007) studied the benefits of receiving cochlear implants early in life, on the longer use of the cochlear implants, and on spoken skills before implants for deaf children with cochlear implants between three and a half and four and a half years old. The results showed higher language scores for children who were implanted younger. Children who received cochlear implants between 12-16 months old reached the same level of spoken language development as their hearing peers, while children who were implanted at two years old or later had difficulty catching up. However, early

implantation does not correlate with syntax skills for children between 13-38 months old without pre-implant hearing experience (Spencer, 2002). Age of implantation, alone, is not a predicting factor for a child's spoken language outcome.

### **Families' Experiences with Cochlear Implants**

Current research mostly explores the process undergone by hearing families when making decisions about communication methods and cochlear implants. A family's decision is often influenced by internal and external circumstances. In a study by behavior scientist Yuelin Li and his colleagues, families' beliefs, perspectives, and attitudes strongly influenced their decisions in providing cochlear implants for their children as well as external circumstances, like other people, events, and environments (Li et al., 2003; Christiansen & Leigh, 2002). Families in the study said the decision-making process was difficult and stressful.

Parent perspectives on their child's cochlear implantation were explored in a UK survey by Dr. Sue Archbold, an educator of the deaf, and her colleagues (Archbold et al., 2006). The top reason for cochlear implantation given by 86% of families in the study was to provide their children access to the hearing world: 78% said it was to give their child greater employment opportunities: and 63% said it was in hopes that their child would learn to talk. While families in the study felt listening and speaking should be emphasized for their deaf children, they also valued sign as a support for spoken language development. About 59% of the families in the study pursued oral/aural approach, 39% a total communication approach, and 2% of the families used a bilingual approach in British Sign Language (BSL) and spoken English (Archbold et al., 2006).

The families shared their perspectives on the outcomes of their child's cochlear implantation (Archbold et al., 2008). Overall, they expressed satisfaction with the results as their children became more independent, exhibited more confidence, and improved in spoken language development as well as communication with their families. The families also commented that the cochlear implant did not fully meet their expectations as some anticipated the full restoration of their child's hearing (see also Christiansen & Leigh, 2004; Weisel, Most, & Michael, 2007; Zaidman-Zait & Most, 2005). Families were not prepared for the amount of patience and long-term management required to support their child with cochlear implants.

Australian scholar Dr. Merv Hyde and his team (2010) investigated families' experiences in making decisions about cochlear implants for their children through surveys and interviews conducted in Australia. The findings show how medical professionals play an important role in informing and guiding families when making decisions about getting their children cochlear implants. Families said they were made aware of the potential negative consequences related to medical and health issues, but not those affecting their child's social, emotional, and educational wellbeing. Families valued having others in their same situation share their experiences with cochlear implants; some families in the study strongly believed cochlear implants were the only option for their children and felt learning to speak was more important than learning to sign (Hyde et al., 2010).

Several researchers investigated families with children who have cochlear implants and their communication options before and after implantation (Huttunen &



Välilmaa, 2010; Watson, Archbold, & Nikolopoulos, 2006; Watson et al., 2008; Wheeler, Archbold, Hardie, & Watson, 2009). Dr. Linda Watson, a UK teacher of the deaf and also an educational audiologist, with her colleagues' (2008) performed a survey of families whose children have cochlear implants. In this study, 119 out of 142 families changed their communication approach after implantation. During the pre-implant period, families used communication modes like sign language, gestures, and speech, but after implantation, most families made a complete switch from signing to speaking exclusively; however, changes were gradual and mostly child-led (Huttunen & Välilmaa, 2010; Watson et al., 2006, 2008). Some families continued to include sign, but focused more on speech and a few families returned to communicating through sign due to communication difficulties and child preference (Wheeler et al., 2009).

Frequently, children with cochlear implants who use sign language pre-implantation begin to drop signing and become monolingual in spoken language (Archbold & O'Donoghue, 2009; Chute & Nevins, 2006). Evidence demonstrates that families and medical professionals may not recognize the difference between using sign to support communicating in English and using sign as a full, visual language. Therefore, recommending a bilingual approach, including sign and spoken languages for children with cochlear implants, is not usually expressed as an option to families (Archbold et al., 2008; Bat-Chava & Deignan, 2001; Hyde & Punch, 2011).

### **Studies on Bilingual Families and their Beliefs on Bilingualism**

Very few studies explore deaf families' beliefs and perspectives on bilingualism. Dr. Thomas Allen's 2002 study shows how deaf children of deaf parents may have

similar experiences in developing two or more languages as hearing bilingual children (as cited in Hoffmeister, 2000). The research literature often explores families' beliefs, attitudes, input patterns, and strategies of maintaining their home language with their children. In Fernández's (2006) literature review of the role of language in one's development of identity and conception of self, she identified that young bilinguals' language development relies on the ability to maintain their first language skills, value and use their home language, and appreciate their culture.

Families living in the United States and who speak minority languages have challenges ensuring their children maintain their bilingualism since families, including the children, often feel the societal burden that stresses the development of proficiency in English only. Families are a child's first teachers and it is essential they support their children's language development (Hart & Risley, 1995). However, this may be different for hearing families with deaf children, as most hearing families prefer to support the development of spoken language for their deaf child. More and more deaf families are choosing to provide their deaf children with cochlear implants to develop auditory and spoken language skills alongside sign language.

Maintaining a home language with young children can be challenging for minority-language families. When children have contact with the dominant language in their environment outside the home, they may face risks to keeping their home language skills and vocabulary. Families and children are surrounded by societal ideologies which focus on developing proficiency in English rather than maintaining one's home language (Wong Fillmore, 1991). Communities and schools also play a role in motivating and

supporting young children to develop proficiency in both languages (Martínez-Roldán & Malavé, 2004; Reyes & Azuara, 2008).

Scholars in bilingualism, Dr. Carmen Martinez-Roldán and Dr. Lilliam Malavé (2004) conducted a case study of a 7-year-old Mexican-American student and his family who were bilingual in Spanish and English. The study explored their beliefs and ideas about how language impacted their child's biliteracy development. Even though the child in the study attended a language maintenance bilingual program in Spanish and English, the child had a negative perspective of the Spanish language and Spanish speakers (Martinez-Roldán & Malavé, 2004). The study revealed the child had misconceptions about his ability to speak Spanish and faced challenges with his cultural identity. Even though the family supported a bilingual education for their son, they also emphasized the importance of learning English when living within the United States. Family and community discourses about language influence children's discourses about language which shows how a family's ideology about language can impact a children's bilingual development.

Scholars Dr. Veronica Pacini-Ketchabaw and Ana-Elisa Armstrong de Almedia (2006) critically analyzed discourses of immigrant parents and early childhood educators in western Canada on language development among young children. Findings showed families viewed English as the "language of legitimacy" because it is the dominant language in their lives. Both families and educators were in agreement on the role of parents in supporting a child's maintenance of their home language and on the role of educators in supporting young children and their developing English skills. Families in

the study had a shared experience of facing the challenges that come with resisting the dominance of a majority language. Teachers expressed a lack of resources in supporting children's bilingual development and viewed it as a barrier in learning English (Pacini-Ketchabaw & Armstrong de Almedia, 2006).

Children may be exposed to opposing beliefs and ideologies on bilingualism from their families. In scholars Ro and Cheatham's (2009) case study of a 10-year-old, second-generation Korean child and his biliteracy and bilingual development in Korean and English, he preferred to learn English rather than learning his home language. At the beginning of the study, the parents in the study highly valued the use of both Korean and English languages at home. For example, the parents read books in Korean with their children. However, the child's school did not provide support for his Korean oral language, literacy, or cultural knowledge. Due to an all-English environment, the child used English more often than Korean and he became ashamed to use Korean with his family. He believed learning English was easier than learning Korean, although his Korean literary skills improved through tutoring and attending a Korean language and culture school. The study's authors argue that it takes an entire community to support children in becoming and remaining bilingual. Demonstrating positive attitudes and values about bilingualism and biliteracy can reinforce children's motivation to remain bilingual (Ro & Cheatham, 2009). These studies show how sometimes immigrant families, in an attempt to do the very best for their children, put the priorities of educators and even society before their own desire to preserve and promote their child's bilingualism.

Examining families' ideologies and beliefs about bilingualism and maintaining home language can be helpful in identifying any underlying assumptions (Martínez-Roldán & Malavé, 2004; Pacini-Ketchabaw & de Almeida, 2006; Ro & Cheatham, 2009). Families' attitudes and beliefs can be influenced by societal forces such as power, privilege, the economy, and resources available to them. These studies help educators in bilingual education understand parents' beliefs and cultural perspectives in order to promote bilingual education for children.

Families in the studies highly value bilingualism for not only cultural, but also practical reasons (Lao, 2004; Park & Sarkar, 2007; Yan, 2003). Children who maintain bilingualism are more likely to develop a positive self-identity, better relationships within their families, and effective communication skills with people who speak their native language as well as having greater employment opportunities. Positive attitudes and beliefs about language development are critical in maintaining a child's bilingualism and self-identity. Further studies about how positive familial attitudes and beliefs can impact children's bilingual development need to be conducted.

Scholars Park and Sakar (2007) interviewed nine Korean parents who immigrated to Canada. The parents were asked about their attitudes and beliefs on maintaining their heritage language with their children. They believed their children's high-level proficiency in Korean helped to foster their cultural identity, created better future employment opportunities, and enhanced their ability to communicate with their grandparents. The study also explored what community factors supported families' use of home language with their children. Parents said a Korean church provided opportunities

for children to interact with the language. Also, Korean books, videotapes, and the Internet were cited as tools families used to support their children's Korean skills.

Additional studies have found culturally and linguistically diverse families have similar feelings when it comes to preserving one's home language (Yan, 2003). Families with children who attended language schools in Chinese, Arabic, Hebrew, and Spanish were compared. The majority of the language groups in the study valued maintaining their home language, with the exception of the Hebrew-language group who mainly use their language for religious purposes. Most of the families in the other three language groups sent their children to language schools in hopes of their children developing a greater cultural identity, increasing their family relations and moral values, having better job opportunities in the future, and promoting bilingual skills. Families also expressed their challenge of finding the time to tutor their children in their home language and their frustration with the lack of native language environments. Families' perceptions in this study were that maintaining home language in this study was highly valued and their involvement in their children's lives was crucial to their children's academic development.

Researcher of second language acquisition, Lao (2004) surveyed 86 families with preschoolers who were enrolled in Chinese-English bilingual schools. The study explored the children's use of Chinese and English as well as the parents' expectations for their children's language development in both languages. English-dominant families and Chinese-dominant families were compared in the study and both were found to value a bilingual education for their children (Lao, 2004). Families' major reasons for sending

their children to Chinese-English bilingual schools were to develop a positive self-image, foster effective communication with the Chinese-speaking community, and maintain their home language. However, the families had different expectations for language proficiency as well as different ideas for how long their children should attend bilingual programs. English-dominant families had lower expectations for Chinese-language proficiency for their children than Chinese-dominant families. However, English-dominant families indicated a desire for their children to continue attending bilingual school until past high school while Chinese-dominant families preferred for their children to enroll in mainstream schools starting in middle school. English-dominant families mostly spoke and read in English while Chinese-dominant families spoke more Chinese at home but read more often in English, demonstrating a gap between the families' beliefs and actual practice in maintaining both languages at home. Researchers argue that practicing both languages at home is imperative to a child's bilingual development (Lao, 2004).

Several studies identify strategies and patterns families use to reinforce their children's bilingual development at home (Perry et al., 2008; Reyes & Azuara, 2008). The extent and frequency of a family's home language's use has an impact on their child's bilingual development. Scholars in education, Perry and her team (2008) explored how Hispanic immigrant families support their children's bilingualism and literacy at home. Families in the study valued family bonding, opportunities for moral education, improving children's proficiency in both languages, and learning academic content. They incorporated school-related literacy activities into their home, as well as cultural beliefs,

and practices, as they believed it would help support their children academically.

Families had positive beliefs and ideologies about bilingualism and were supported by their children's teachers.

De Houwer (2007) conducted a large survey study in Flanders, Belgium on the role of different parental-language use patterns in children's use of language. Different patterns of home language use ranged from using Dutch (majority language) only to minority language only to using both languages. Parents and children in the study differed from each other in language use and patterns. Parents used their home language as their dominant language more often than their children. The children showed an increased monolingual use of Dutch. The study's author believes there is a relationship between the frequency of parental input and children's language use - the more often a child hears the minority language, the more often the children will use it.

Researchers in bilingual-bicultural studies, Reyes and Azuara (2008) studied twelve four and five-year-old Mexican immigrant children and their emergent biliteracy development in Spanish and English. The study explores how environmental factors such as those in the home, school, or community influence the children's development. The participants lived in a bilingual and bicultural neighborhood, immersing them in Spanish and English, but under state law, their teacher was only allowed to teach class in English. The children's English and Spanish skills were tested and the results ranged from Spanish dominant to English dominant, depending on the amount of experience with and exposure to both languages. The children developed a metalinguistic knowledge for print in both languages. Children in the study participated in a variety of literacy



events in both languages at home which reinforced their biliteracy development. The study revealed many evidences of intergenerational learning through interactions with siblings, grandparents, or distant relatives at home, indicating emergent bilingual children's development is "dynamic and mediated by their immediate socio-cultural contexts" (p. 43). Children developed bilingual skills naturally and through social interaction.

As Houwer (2007) argues, the more families use their home language with their children, the better the children will develop their home language. Children demonstrated positive cross-linguistic development from their first to their second language, but still competed between their first and second language input. It is important for children to have a balanced language input from both languages.

### **Implications for the Study**

The preceding literature review explored several areas regarding language ideologies of American Sign Language and English, the role of bilingualism for deaf children, and the efficacy of cochlear implants for deaf children. The literature indicates issues of conflicting perspectives towards the Deaf population and how these perspectives may predetermine deaf children's language outcomes. Individuals' perspectives towards deafness also may shape their own language ideologies of American Sign Language and English. According to Ruiz's (1984) language orientations, language can be viewed as a problem, as a resource or as a right. A majority of society tends to view deafness as a disability; therefore, American Sign Language is seen from a language-as-problem orientation. The Deaf community opposes this notion and believes

they are a minority-language group that views learning ASL as deaf child's right. Research also gives evidence for the advantages of sign language for the linguistic, communicative, cognitive, academic, literacy, and psycho-social development of children with cochlear implants.

As indicated from the family language policy perspective, families make decisions and choices about language use with their children from external and internal forces. Families' experiences and beliefs may influence their language management. Families may also rely on other sources or be influenced by societal forces to make decisions about language use within the home. For instance, medical professionals typically influence hearing families with deaf children to perceive deafness as a disability and see cochlear implantation as a cure for deafness. Therefore, hearing families' goals for their children with cochlear implants are to develop spoken language skills and this goal is subtractive by not including ASL. Research indicates that spoken language outcomes from cochlear implantation are unpredictable, which poses a risk for language deprivation and delays if sign language is withheld. There is no evidence that indicates that sign language inhibits spoken language development. While some families embrace including sign language, it is frequently seen as a temporary tool for communication until they master spoken language. Deaf parents have knowledge and experience being deaf and can help effectively communicate and facilitate their children's language skills through visual communication. Deaf families are likely to value maintaining their cultural language and to promote bilingualism in both languages, ASL and English with their children.

Bilingual families with children, who speak two or more languages exhibit positive perspectives towards English and their home languages, yet share some challenges in maintaining home language with their children. There are no existing studies that address Deaf families' experiences from a cultural and bilingual stance. This study investigates if Deaf families share similar perspectives and challenges as other bilingual families. While existing literature shows the advantages of bilingualism for deaf children, Deaf families' challenges and the benefits of maintaining bilingualism are explored in this study.

Families' beliefs and perspectives guide their linguistic choices and interaction strategies that will have an impact on their children's language outcomes. Deaf children who do not have full access to language are likely to be linguistically, socially, and cognitively delayed and have fractured language abilities. A visual framework exploring Deaf families' beliefs and perspectives on bilingualism in ASL and English is used as a guide for this study:

## Guiding Framework to Examine Deaf Parents' perspectives and beliefs on language for their children with cochlear implants

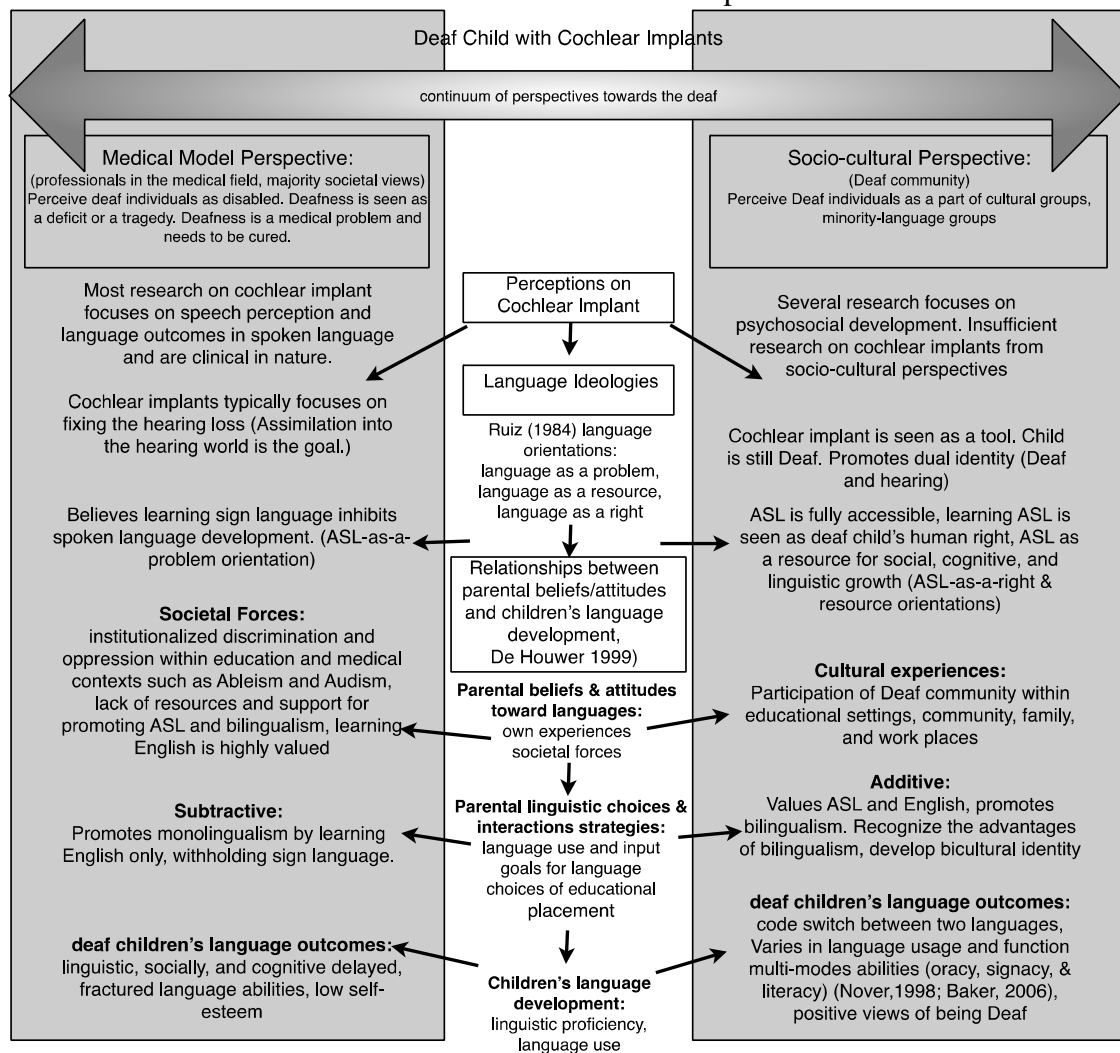


Figure 2. Guiding framework for this study. Adapted from *Relationship between parental beliefs/attitudes and children's language development* by A. DeHouwer, 1999 as cited in Kendall, K., Fogle, L., & Logan-Terry, A. 2008, *Language and Linguistics Compass*, 2, p. 912.

## Deaf Families and their Perspectives on Cochlear Implants

Most of the studies on families' experiences and perspectives related to cochlear implantation focuses on hearing families. Recent studies have begun exploring Deaf parents' experiences and perspectives of children with cochlear implants (Chute,

Kretschmer, Popp, & Parisier, 1995; Dettman et al., 2012; Hardonk et al., 2011; Hassanzadeh, 2012; Hyde et al., 2010; Mitchiner & Sass-Lehrer, 2011). Studies indicate some similarities and differences between hearing and deaf parents' experiences; it is critical to learn about these diverse perspectives and experiences in order to improve professional practice and empirical research. Deaf families and hearing families share similar experiences when deciding on cochlear implants for their child(ren) when it comes to the benefits and risks (Dettman et al., 2012; Hardonk et al., 2011; Hassanzadeh, 2012; Hyde et al., 2010; Mitchiner & Sass-Lehrer, 2011).

Many of the studied families set high expectations for their child with cochlear implants, wanting them to be linguistically fluent in sign language and competent in spoken language. Their goal was for their child to develop social and academic proficiency in both visual and spoken languages as well as have the opportunity to participate in both deaf and hearing communities (Hyde et al., 2010; Mitchiner & Sass-Lehrer, 2011).

The speech perception and spoken language skills of cochlear implanted children with deaf parents has been explored. Researchers on cochlear implants, Chute, Kretschmer, Popp, and Parisier (1995) explored one deaf family's experience with a 5-year-old daughter who received cochlear implants. The study was predominantly from a medical perspective and mainly focused on the child's ability to hear and speak. Even after two years with a cochlear implant, the child did not demonstrate great gains in spoken language development so she continued to use sign language to communicate with her family.

Australian speech pathologist Dettman and her colleagues (2012) studied eleven children from five to nine years old who had cochlear implants with one or two deaf parents to determine their speech perception and language acquisition skills. The average delay of receptive vocabulary in spoken language for children with one deaf parent was nine months and eighteen months for children with two deaf parents. It is noted that majority of the mothers in the study did not finish high school and the children's sign language abilities were not assessed.

Researchers from Belgium, Hardonk and his team (2011) explored a small sample of deaf parents' decision-making process on making choices between cochlear implantation and hearing aids for their children. Deaf parents shared similar factors in decision-making processes as hearing parents such as having concerns about medical risks from CI surgery and about spoken language development. Deaf parents had more emphasis on Deaf identity, sign language, and ethical issues as factors in deciding between CI and hearing aids.

A researcher in Iran, Dr. Hassanzadeh (2012) conducted a retrospective study to compare between deaf children with deaf parents and deaf children with hearing parents on their outcomes from cochlear implantation. A matched sampling between 7 deaf cochlear implanted with deaf parents and their peers with hearing parents were compared on their speech perception, speech production, and language development. The results indicated that the cochlear-implanted children with deaf parents outperformed deaf children of hearing parents on cochlear implantation performance. The researcher recommends supporting deaf children to develop sign language at early age, especially

before cochlear implantation, as it appears to enhance their abilities to learn spoken language after receiving cochlear implants.

Mitchiner and Sass-Lehrer (2011) performed a short pilot study where three culturally Deaf mothers who have deaf children with cochlear implants were interviewed about their perspectives on supporting their children's language development in American Sign Language and English. The mothers in this study had strong beliefs about providing their children with more choices and opportunities; therefore, they wanted their children to have access to both languages.

The three mothers came from a variety of backgrounds. Sierra<sup>3</sup> has Deaf members in every generation of her family, including her husband who is hard of hearing. At the time of the interview, her son was 2-years-old. He was born deaf and received cochlear implants when he was eighteen months old. Sierra and her husband created a system at home: Sierra will talk with her son through sign and her husband will talk with their son through spoken English.

Jasmine is the only deaf child in her family, but she and her Deaf husband have several children. Her daughter received cochlear implants when she was twenty months old. She learned ASL after birth but developed spoken language rapidly after receiving the implants. Jasmine strongly believes ASL helped lay the foundation for her daughter to learn spoken language. Jasmine expressed her frustrations about not being able to communicate with her own immediate family because of communication barriers.

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<sup>3</sup> The women's names have been changed.

Lauren also has many Deaf family members of different generations. She grew up in a mainstream setting and was part of both hearing and Deaf communities. She and her late-deafened husband have several children. Her daughter received cochlear implants when she was seven years old, but Lauren shared that she wished her daughter had received her cochlear implants at a younger age.

The mothers highly value their children learning English, mainly because it is the dominant language in this country. They believe developing English skills is essential to function within our society. They understand that with cochlear implants, their children will have an easier time communicating with the hearing population. Even though the mothers have strong beliefs about supporting their children's ASL and English skills, they stressed the need to support their children's spoken language development more than ASL. Lauren admits she values her daughter's spoken language more than her ASL skills. She feels content with her daughter's ASL abilities and that learning ASL at home sufficed. All the mothers sought out programs and services that provided abundant spoken language support. Sierra's son receives multiple speech therapy services and attends a deaf school that practices a bilingual approach in ASL and spoken English. Jasmine's daughter attends at a childcare program with hearing peers and a daily auditory-verbal program. She also receives speech therapy on regular basis. Lauren has chosen to place her daughter in a mainstream setting with an interpreter to reinforce her spoken language.

The mothers recognize there is no "one size fits all" method that works for everyone since all individuals and circumstances are different. Each child has unique



needs and different experiences that may impact their language development. They feel exposing children to two languages gives them more room to grow. If the children do not develop or succeed with spoken language, they will always have the option to fall back on ASL.

When asked about their beliefs relating to the Deaf and hearing communities' support of deaf children with cochlear implants, Sierra said she wants both communities to understand deaf children with cochlear implants are still deaf and still miss out in a spoken environment and ASL does provide full access to a language. Instead of being against cochlear implants, Sierra believes the Deaf community should focus more on how to keep ASL alive, as she believes it is greatly beneficial for deaf children. Jasmine believes many in the hearing community think deaf children in hearing families do not need sign language because English is their primary language. Isolation often happens when hearing families do not learn to communicate with the child and when the child does is not able to communicate with their families. Lauren feels deaf children learning both ASL and English can help connect both communities. The study gave a glimpse of Deaf parents' perspectives about ASL and English for their children with cochlear implants from three mothers.

### **Summary**

Most research on cochlear implantation comes from medical perspectives and rarely focuses on socio-cultural perspectives. This study aims to include cultural perspectives towards deaf children with cochlear implants by learning about Deaf parents' unique experiences and perspectives. This literature review and preliminary

study validates the need for a more in depth study on deaf families' beliefs and attitudes about bilingualism in ASL and English for their children with cochlear implants.

### 3: METHODS

Chapter 3 discusses the methods used in this study to address the research questions. The chapter begins with an introduction of the methods of the study. It then shares a description of the researcher's identity and interest in conducting this study. Characteristics of the participants and the research design are discussed next. The chapter ends with a discussion on data collection and analysis procedures.

This study investigated Deaf families' beliefs and perspectives about their children with cochlear implants' bilingualism in American Sign Language and English. The goal of this study was to learn about families' values and goals for their children in maintaining bilingualism in American Sign Language and English in order to inform practice in educational settings. Quantitative and qualitative findings on families' beliefs, attitudes, and ideologies about bilingualism in ASL and English were explored and identified through a complementary mixed method design. The complementary mixed method design "seeks broader, deeper and more comprehensive social understandings by using methods that tap into different facets or dimensions of the same complex phenomenon," (Greene, 2007, p. 101). This mixed method design made it possible to maintain a complementary stance between qualitative and quantitative methods for elaboration of overall interpretations and inferences from the study. Ideally, collecting data from multiple sources achieved a complementary approach as well as a triangulation

between qualitative and quantitative methods. The mixed method research design in exploring families' perspectives and beliefs on bilingualism is similar to that of Hyde and his team (2010) in which researchers analyzed survey results from 247 families, collecting background information on families' perspectives on the information-gathering and decision-making processes prior to a child's implantation. After the initial survey responses were collected, follow-up interviews were conducted with 10% of the families; the data from the interviews provided an illustration and elaboration of the quantitative findings.

The survey questionnaire provided the quantitative data essential to describe the demographics of Deaf families with children who have cochlear implants. Interviews provided the critical qualitative data required to gain a deeper understanding of individual family's values and goals for their children's language development.

Initially, online surveys were sent across America to Deaf families who have children with cochlear implants, asking about their beliefs and attitudes toward language development in ASL and English for their children. 17 families' responses were collected and analyzed to provide guidance to review the qualitative findings.

The next phase of the study was to collect and analyze qualitative data through interviews with eight families about their beliefs, attitudes, and ideologies on bilingualism. For triangulation, these survey results were compared with the data gathered from the first round of family interviews. Understanding families' beliefs, perspectives, and ideologies can be complex and multifaceted; therefore, a mixed method design was the most effective.

## **Research Questions**

This study sought to answer the following questions:

- 1) What are Deaf families' beliefs and perspectives about language development in ASL and spoken English for their young children with cochlear implants?
- 2) How do families perceive their own language abilities in American Sign Language and English?
- 3) Is there a relationship between families' language abilities and their beliefs about ASL and English?
- 4) How do Deaf families' support their young children's language development in ASL and spoken English at home?

## **Researcher Identity**

I am culturally Deaf and I am bilingual in ASL and written English. Since both of my parents are Deaf, I began acquiring American Sign Language at birth. I'm a member of the Deaf community. I believe there is a limited voice for deaf children with cochlear implants from a cultural perspective in existing literature. Since the majority of the literature comes from a medical perspective where the focus is to "fix" deaf children's hearing loss and on their speech perception skills, there is minimal research on Deaf parents' perspectives and beliefs about language development for their deaf child.

I do not view being deaf as a problem -- it is part of who I am. The dominant culture tends to view deaf people as if they are less than normal or that they are missing

something, but I don't feel this way. In fact, I feel like I've gained something most people don't have: a unique perspective of life. I cherish the fact that I function in different ways than other people because, in some ways, it makes me more unique, insightful, and creative.

My perspectives towards cochlear implants have changed gradually in the past 10 years. I initially did not support the idea of providing children with cochlear implants and was completely opposed to the idea that deaf children need to be "fixed". I strongly felt cochlear implants eradicate a child's sense of pride and their Deaf identity. Deaf children with cochlear implants spend hours and hours learning how to speak rather than learning and developing other skills essential for their education. I believed it was a waste of critical time to focus on supporting deaf children's ability to speak instead of investing time in supporting them to think critically through sign language.

From 2000 to 2006, I taught preschool for deaf and hard of hearing children. In 2000, my school boldly initiated an education center for families to share resources and information on cochlear implants. They also started a pilot class with preschoolers who have cochlear implants. The class's teacher and teacher's aide were both hearing and their class used sign-supported spoken language as their communication mode. The main goal was to support the children's spoken language skills. I had many opportunities to interact with the children from the pilot class during recess and other activities. The more I interacted, the more I realized the critical role I could play as a Deaf teacher for them. Several children in the class were new cochlear implant users and did not have full access to spoken language. They mostly used sign language to express their needs. They

benefitted from full access to sign language and being around Deaf role models. My attitude began to change and I realized I had many misconceptions about cochlear implants, realizing that deaf children with cochlear implants can still participate in Deaf culture and maintain a sense of Deaf pride. At around that time, I began to take courses in bilingual education in ASL and English and learned about the positive benefits of bilingualism.

My co-teacher, Dr. Amy Lieberman, and I began a dialogue on how we could better educate children with cochlear implants. We came up with several ideas and met with the school about mixing the children from the cochlear implant class with children from my deaf class into one class. We felt it was critical for children with cochlear implants as well as for other deaf children to have access to both ASL and English on daily basis. My co-teacher is hearing and she provided spoken English language support while I provided ASL support. Through this approach, children were equally exposed to both languages. My co-teacher and I taught the same class for two years comprised of children with cochlear implants, children who are hard-of-hearing, and children who are profoundly deaf. The outcomes were positive. Children with cochlear implants had full access to ASL and spoken language throughout the day. They began to codeswitch between spoken language and sign language. One time, a child signed to me about her artwork and then, the next minute, she told my co-teacher in English exactly what she just signed to me. This is exactly what we wanted to accomplish. We began to demonstrate our approach to other programs. As a result of my teaching experiences, my

attitude about children getting cochlear implants completely changed and I am now open to the option.

It is expected for hearing families to make the decision to have their children receive cochlear implants, but there was an initial shock to the Deaf community when several Deaf parents decided to have their deaf children receive cochlear implants. The hearing parents aspired to have their children to communicate effectively with their families and knew very little if anything about Deaf Culture or sign language (Crouch, 1997). Initially, I did not see the need for deaf children with Deaf families to receive cochlear implants. Deaf children with Deaf parents academically perform on par with their hearing peers. With a better understanding of bilingualism, I recognize Deaf families' desire to provide their children with greater access to sign and spoken languages. However, I'm curious about how they perceive each language. For instance, do they value their children to increasing English skills more than increasing ASL skills? We are in an English-dominant country and learning English is a top priority in our society (Wong-Fillmore, 2000). Every year, I had at least one or two 2-3-year-old children who arrived in my class without any formal language. Without early access to language, they were delayed both cognitively and linguistically and had challenges catching up with their peers. Deaf children who had early access to language performed at their age-level. I was interested to explore the role sign language plays in the spoken language development of children with cochlear implants.

The Deaf community is a small community and the issue of confidentiality is crucial. Cochlear implants are still a controversial issue in the Deaf community and



families are often challenged for their decision to implant their children. Protecting the confidentiality of the participants was my top priority throughout the study.

### **Setting**

The online survey research was conducted nationwide throughout North America. The survey was sent online to members on the Cochlear Implanted Children of Deaf Adults (CICDA) Listserv, and listed on “Research Opportunities” page on the Hands and Voices website. The (CICDA) Listserv is primarily for Deaf families with deaf children who have cochlear implants. The Listserv currently has approximately 20 members and recipients were also asked to share the survey with other families outside of the Listserv. Hands and Voices is a nationwide non-profit organization that provides support for families with deaf and hard of hearing children. I posted information about my study to invite participants on their website. The interviews were conducted through videophone calls or face-to-face in families’ living rooms or kitchens.

Midway in the data collection stage, I received over 80 survey posts that looked suspicious. There were similar patterns across the suspicious posts. The participants did not match the demographics of the study i.e. they were hearing parents. The responses across the multiple posts were also written in a very similar way. After consulting with the dissertation chair, it was agreed these posts were fraudulent. It was suspected that the person who made the fraudulent posts had hoped he would receive financial compensation automatically or tried to disrupt the study.

To resolve this issue, I made a new copy of the existing spreadsheet on Google Docs to create a new link to the survey and removed the fraudulent responses from the

new spreadsheet. I added a disclaimer on the survey stating, “Participants who do not meet the criteria of the study will not be compensated. Any fraudulent posts will be eliminated from the data collection and will not be compensated.” I also disabled the original link and shared a new link to the survey with the families through the Cochlear Implanted Children with Deaf Adults Listserv (CICDA). I removed the information about the study from the Hands and Voices Website, which was accessible to the public to avoid possible fraudulent posts. After the changes were made, the issues were resolved.

### **Participants**

Deaf parents who have children with cochlear implants were recruited to participate in the study. Finding participants relied on snowballing and purposeful sampling due to a small population of Deaf parents with children who have cochlear implants. Their language use ranged from being fully oral to being bilingual in American Sign Language and English. If a family has one deaf parent, they were also eligible to participate.

The survey was distributed online to Deaf families in North America through snowball sampling, where families were encouraged to recruit their friends or acquaintances who met the same criteria of the study to participate in the study. I was able to recruit 17 families to respond to the initial survey, and then I conducted follow-up interviews with 8 families. The selection for the interview was purposeful with one criterion; the parents had used American Sign Language with their child/children since birth.

## **Data Collection**

**Quantitative Data Sources.** The family questionnaire responses were collected and computed over a period of three months. I used the Google Docs survey tool to create an electronic survey made up of four sections: a) standard demographic data about the family and the child; b) a series of numeric scales on ratings of perceived family's language skills; c) 7 belief statements on bilingualism in ASL and English and d) 4 open-ended questions about family goals, ideal educational placement, and bilingual expectations.

**Section 1.** I asked several demographic questions about the family, including: a) ethnic background; b) family's income; c) education level; d) family's identity; e) parents' language backgrounds; f) age of the child(ren); g) age of child's cochlear implant activation h) family's language use at home; and i) child's language use at school or at daycare with children who have cochlear implants.

**Section 2.** In the second section of the questionnaire, families were asked to rate their and their child's language skills in ASL and English as well as in other known languages using a numeric scale from 1-5, from poor to excellent. This rating helped determine if there is a correlation between a family's perceived language skills and their beliefs about bilingualism. I also aimed to identify children's bilingual skills in ASL and written and spoken English.

**Section 3.** Seven general belief statements on bilingualism in ASL and English were listed in the third section of the survey. Families expressed their opinions on each belief statement using a Likert scale, a psychometric scale to measure the intensity of

their opinions. They chose whether they strongly agree, agree, are neutral, disagree, or strongly disagree with each statement. The correlation between their responses and statements were computed.

**Section 4.** The fourth section of the questionnaire was qualitative. Families answered 4 open-ended questions about their family's goals and ideal educational placement for their child with cochlear implants. I aimed to identify the families' reasons for providing their children with cochlear implants and to better understand their goals for their children. The fourth section supported quantitative responses in comment boxes following each question.

**Qualitative Data Sources.** Qualitative data collection on Deaf families' perspectives and beliefs towards bilingualism in ASL and English were conducted through semi-structured formal interviews and from the survey. The first interested eight families who met the criteria of the qualitative section of study were invited to continue their participation in the study. Each family was contacted through an email, requesting their participation in the study. After receiving responses from the families, semi-structured interviews with the families were scheduled. During face to face and videophone interviews, possible risks and benefits of the study were shared with the family and parental consents were obtained. Families who participated in the interview study were compensated with an additional \$50 Amazon gift card.

**Semi-structured formal family interviews.** Each family was interviewed once ranging from 50 minutes to 1 hour and 20 minutes, to get in-depth information about their beliefs and perspectives regarding language development. Families were asked about the

challenges they experienced in maintaining bilingualism in ASL and English. Families were asked to share their practices in supporting bilingualism at home. A set of open-ended questions was established before the interview, and follow-up questions were added during the interviews to get more information or to ask for clarification. The questions were clearly presented through American Sign Language, tied to the purposes of the study, and free of jargon. Families also had access to the questions in written English. The interviews were video recorded and the data from interviews were translated and transcribed from ASL to English. I reviewed and edited the English transcriptions alongside the video of the interviews in order to monitor for any errors. The edited English transcriptions were sent to the participants for their review to ensure the transcriptions were accurate.

**Data Collection Procedures.** The first step in the data collection procedure was to obtain permission from the Institutional Review Board (IRB) from Gallaudet University to conduct the study. The IRB at Gallaudet has extensive experience in reviewing studies with the deaf population. After receiving permission from Gallaudet's IRB, I obtained permission from the Human Subject Review Board at George Mason University to proceed with the research. The next step was to conduct a pilot study using the survey with three Deaf families who have children with cochlear implants. Three families were recruited through convenience sampling. Improvements on the survey were made based upon families' recommendations. An updated version of the survey was resubmitted to the HSRB for review. Then, I requested that the moderators of the Cochlear Implanted Children of Deaf Adults Listserv and the Hands and Voices website

post the information about the study. A link to the electronic survey, a description of the study, and a request for participants to complete the survey were included. The families were notified about the risks and the benefits of participating in the study. There were no potential physical, social, or legal risks to the participants. Also, there were no direct benefits to the participants but there may be anticipated benefits in contributing to general knowledge on this topic. The families were encouraged to share the link to the survey with other families outside of the listserv. Families were asked to leave their contact information if they are interested in participating in a follow-up interview. Families who participated in the survey were compensated with \$20 Amazon gift card. Information about the study was sent to the members in the CICDA listserv on a weekly basis for three months.

### **Demographic Profile**

**Survey respondents.** The respondents to the survey were mostly mothers, fourteen to be exact, while three fathers also responded to the survey. Information about each family member was gathered in the survey, which included thirty-three parents and twenty-four children. Thirty-one parents identified themselves as white and two as nonwhite. Out of thirty-three parents, thirty-one of them also identified themselves to be Deaf and the remaining to be hearing. Almost half of the parents (sixteen parents, 48%) reported their first language was American Sign Language and English was their second language. Fifteen parents (45%) indicated English as their first language and ASL as their second language. The remaining parents (7%) learned first languages other than ASL and English, and eventually learned ASL and English as their subsequent languages.

Six (18%) of the parents either completed high school or some college as their highest level of education, whereas twenty-seven (82%) parents completed college with a bachelor degree or above. Annual household income varied across the families. Two of the families (12%) earn \$49,000 or less each year. Eight of the families (47%) earn \$50,000 to \$89,000 annually. Seven (40%) of the families earn \$90,000 or above each year.

Twenty-four children with cochlear implants were accounted for in the study, including fourteen males and ten females. The age range of the children at the time of the study ranged from one to seventeen years old. The mean age of the children was seven years old. The majority of the children were born deaf (twenty-two children) while two of the children became deaf before their second birthday. Most of the children became deaf due to genetics. The children's first cochlear activation ranged from thirteen months to eleven years old. The mean age for first cochlear activation was thirty months old. Out of twenty-four children, ten of them have bilateral cochlear implants. Three children in the study have disabilities; one child possibly has Usher Syndrome, one child is deafblind, and one child has Attention Deficit Hyperactivity Disorder (ADHD).

**Participants in follow-up interviews.** Fifteen out of seventeen families expressed interest in participating in the follow-up interview. The first eight interested families from the survey were selected to participate. Most of the interviewees were mothers; several fathers participated for a few minutes in the interviews and one father participated fully in the interview. All of the parents in the follow-up interviews identified themselves as Deaf and as using ASL, except for two families who identified

themselves to be oral and used Pidgin Signed English (PSE). Several parents in the study are cochlear implant users, themselves. A majority of the parents came from hearing families (thirteen parents) while three came from several generations of Deaf families.

Table 1

*Description of the Families*

Families	Parents' family background	Age of child's first CI activation	Age of child/ren at the time of the study
Family #1	Both parents come from hearing families	Child 1: 1.11 year old	Child 1: 3 years old
Family #2	Both parents come from hearing families	Child 1: 2.6 years old Child 2: 2.2 years old	Child 1: 5 years old Child 2: 3 years old
Family #3	Both parents come from hearing families	Child 1: 11 years old	Child 1: 15 years old
Family #4	Both parents come from hearing families	Child 1: 2.9 years old Child 2: 1.1 year old	Child 1: 11 years old Child 2: 4 years old
Family #5	Both parents come from hearing families	Child 1: 1.9 year old	Child 1: 6 years old
Family #6	Both parents come from hearing families	Child 1: 1.3 year old Child 2: 1 year old	Child 1: 5 years old Child 2: 3 years old
Family #7	Both parents come from Deaf families	Child 1: 2.8 years old Child 2: 11 months old	Child 1: 5 years old Child 2: 2 years old
Family #8	One parent comes from hearing family, the other parent comes from Deaf family	Child 1: 4 years old Child 2: 2.6 years old Child 3: 1.1 year old	Child 1: 9 years old Child 2: 7 years old Child 3: 2 years old



Table 2

*Language Use at Home and Schools/Daycare*

Families	Language use at home	Language use at School/Daycare
Family #1	ASL, with some spoken English support	Spoken English (Auditory-Oral program)
Family #2	ASL & spoken English (bilingual)	Spoken-English (Auditory-Oral program)
Family #3	Mixed sign language & English, (Sim-Com)	Bilingual (ASL and English)
Family #4	Mixed sign language & English, mostly PSE (Sim-Com)	Spoken English (Mainstreaming)
Family #5	ASL only	Spoken English (Mainstreaming)
Family #6	Mixed ASL and English with mother, ASL only with father	Spoken English (Mainstreaming)
Family #7	ASL only with mother, ASL and spoken English (bilingual) with father	Spoken English (Mainstreaming)
Family #8	ASL only	Child 1 & 2: ASL/English Bilingual Child 3: Spoken English (Mainstreaming)

**Data Analysis**

**Quantitative Data Analysis.** The quantitative data from the survey were entered using SPSS, a computer program to perform statistical analyses. Demographic data were analyzed to develop a demographic profile of the sample. Family's belief statements using Likert Scale were calculated for percentages. In order to answer my third question, I used correlation tests and multiple regressions to identify if the family's perceived

language skills and their responses to the belief statements were correlated and if there were statistically significant differences between responses and statements. .

**Qualitative Data Analysis.** In the first level of qualitative analysis, the videotaped interviews were translated and transcribed from ASL to written English. The quotations from the interviews and the survey were open coded line by line for major and sub themes on Atlas.ti, qualitative data analysis software. Multiple preliminary coding categories emerged from the first level of open coding. The next level of coding was to reduce and collapse overlapping and redundant codes into categories of themes. A constant comparative method was conducted with all data sources throughout the data collection process in order to identify new themes. Through this process, I began to create themes to interpret meaning from all data sources to answer the research questions.

Table 3

*Second Level of Category Development*

Question 1: Beliefs and Perspectives on ASL, English & Bilingualism

<b>Categories</b>	<b>Sub-Categories</b>
Beliefs about English	Beliefs & Perspectives about English Reasons for Cochlear Implants Works in Hearing World
Beliefs about ASL	Being part of the Deaf community Perspectives on ASL
Beliefs about Bilingualism	Families' background Educational background Parents' Identity Goals for future

Question 4: How families support bilingualism at home

<b>Categories</b>	<b>Sub-Categories</b>
Language use at home and school	Language choices Language use at home How child communicates at home Perceived language abilities for their children Educational choices
How families support their children's language development at home?	High expectations Role of Deaf Parents Supporting ASL development Supporting Auditory development Supporting Literacy Skills Supporting spoken language development Using technology How parents communicate with children
Challenges and solutions to maintain bilingualism	Challenges with cochlear implants Peers Challenges in supporting language development Hearing and Deaf communities' perspectives on cochlear implantation

## **Validity Threats**

There were possible validity threats to this study. First of all, the follow-up interviews were conducted in American Sign Language and were later translated and transcribed into written English. It is a challenge to translate and transcribe exactly what the participants expressed in ASL to written English. The transcriber has abundant flexibility in choosing which English word or phrases to reflect the signs used by the participants and it may stem from their own bias on word choices. The translator must carefully decide which English word to describe a word in ASL. For instance, signing in ASL for the word “beautiful,” is synonymous with the words, “pretty,” “gorgeous,” “lovely,” and so forth. Therefore, it is easy to mistranslate what the participants expressed. Also, the person who translates must have strong receptive skills in ASL and English to appropriately translate from ASL to English. To avoid the possibility of mistranslation, member checking with the participants was conducted to review the written transcripts.

The other possible validity threat is the possibility of researcher bias in the conclusions (Maxwell, 2005). I needed to be conscious about my own personal bias on bilingualism and cochlear implants throughout the research process. I have a strong passion about bilingualism, and I highly value providing deaf children with early access to sign language. Through the mixed methods approach, I was able to monitor for bias at various points of my study through triangulation. Having multiple data sources, both from the survey and the interview transcriptions, provided ways to corroborate evidence from the study.

## 4: RESULTS

After data were collected and analyzed, the findings were used to answer each of the four initial research questions that explored Deaf parents' perspectives and beliefs about bilingualism in ASL and English and ways in which they support their children's development of ASL and English skills.

### **Question 1**

The first question asks broadly about the Deaf families' beliefs and perspectives about ASL and English for their children with cochlear implants as well as about bilingualism. I investigated their beliefs and perspectives through multiple ways. Seventeen families in the survey shared their opinions on five different belief statements related to both languages and bilingualism using a Likert scale. They chose whether they strongly agree (5), agree (4), are neutral (3), disagree (2), or strongly disagree (1) with each statement (see Figure 3 for results of families' opinions on belief statements). Families in the survey also gave open-ended answers on their beliefs and perspectives. Follow-up statements on overarching beliefs and perspectives about both languages in ASL and English were collected through follow-up interviews with eight families. The results of the families' beliefs and perspectives were analyzed and categorized based on their discussions of each language and on bilingualism, in general.

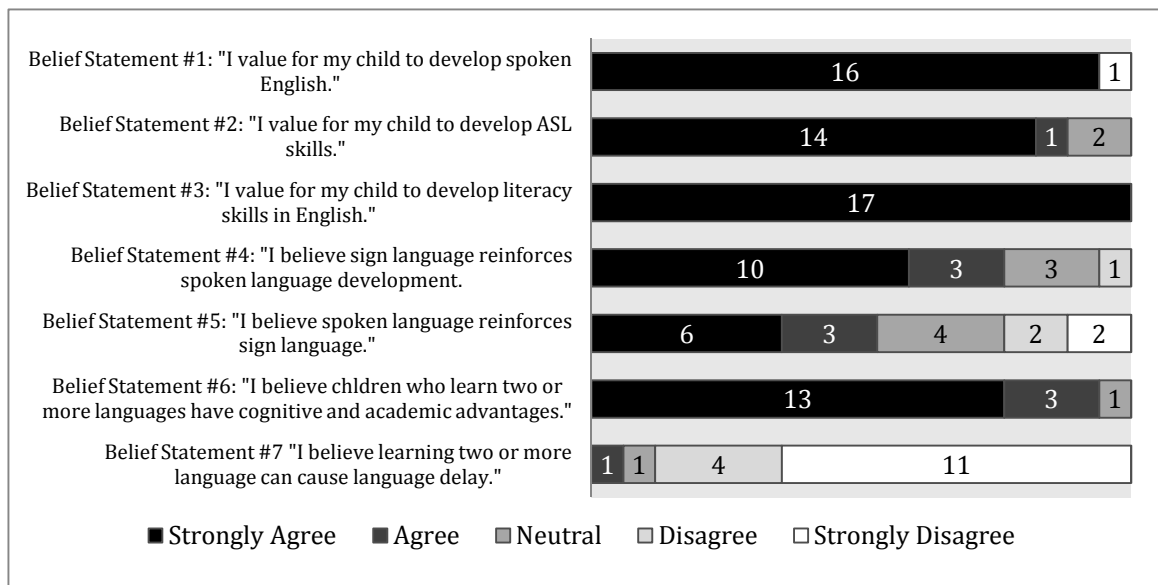


Figure 3. Families' opinions on belief statements.

**Families' beliefs & perspectives on English.** According to the survey and the interviews, families in the study demonstrated strong beliefs for their children to develop spoken, reading, and writing skills in English. In the survey, all of the families (94%), except for one (6%), strongly agreed with the belief statement, "I value for my child to develop spoken English skill." Only one family strongly disagreed with this statement because their goal was to provide their child, who is deaf and blind, with access to environmental sounds, not necessarily to develop spoken language skills. Two significant themes on families' perspectives on English derived from the interviews were; to develop spoken English skills as one of main reasons for cochlear implants and recognizing English as a majority language.

***To develop spoken English skills as one of main reasons for cochlear implants.***

Families expressed one of the main reasons why they chose to provide their children with

cochlear implants is for their children to learn how to listen and speak in English. They felt cochlear implants enabled their children to have more access to sounds to increase auditory and speech abilities. A majority of the families felt having cochlear implants would also enhance their ability to independently communicate and interact with hearing people in the community and in the workplace. Families expressed that cochlear implants make it possible for them to be more independent in their environment since they do not need to depend on sign language interpreters. One family wrote:

[The cochlear implant] gives her an opportunity to participate independently 100% in the hearing community, including our families without interpreters (able to socialize and have deep conversations with hearing people directly). It also enables her to speak and hear on the cell phone. (Survey Family #2)

Another surveyed family discussed their important reason for providing their child with a cochlear implant to increase her abilities to hear and speak:

We feel that having a strong ability to hear and speak would enable our daughter to have confidence in pursuing her dreams in the world. We also have wanted her to have the best technology to grow up with and CI took place over hearing aids. (Survey Family #5)

*English as a majority language.* Many of the families in the study recognize that English is a majority language in our country and learning English is crucial in our society. All of the families in the survey strongly agreed with the belief statement, “I value for my child to develop reading and writing in English skills,” and also expected their children to be able to eventually speak, read, and write fluently in English. Families felt it is critical for their children to develop strong English skills in order to function in life and do things such as go to college, get a job, and survive in their environments. Families described what they valued about English in the follow-up interviews:

We support her to develop English skills. It is a majority language in our society such as in the community, in jobs, and etc. Majority of people speak in English. It is number-one used language in America and internationally, too. It supports reading and writing skills, too. For kids and people to survive in the world, they have to know how to read, write and do math, those three things and including social skills, those four things to succeed in college, to get a job, and survive in their environment. I think that’s important for learning English. (Interview Family #1)

I also value English, especially having the ability to read and write in English. It is an important skill for their future careers. There are more demands in being fluent in English now and it is important for them to have good English skills. For example, I want them to feel comfortable



sending an email and not having to worry about to write in an appropriate English grammar. (Interview Family #8)

Other families expressed similar reasons for getting cochlear implants:

[To increase] ease to get a job in the hearing world and to get a promotion and ease to communicate with hearing people in stores, church, meetings, etc. (Survey Family #1)

As you know, in ASL we tend to not include words like “to be” and others. ASL has different structure in grammar than English. I believe that this helps my daughter with her writing. I believe spoken language helps improve her writing skills. I am sorry to say that. ASL is more conceptual and helps with understanding the big picture and gaining an understanding. That’s fine. For writing, especially for writing, English, learning spoken English helps set the right way to write in English and to write in appropriate grammar. (Interview Family #1)

One parent disagreed with a common reason for getting cochlear implants: to reinforce children’s literacy skills. She emphasized:

It is just to provide them access to spoken English. That's all. I knew they do not need spoken English to develop literacy skills. I myself read and write very well and I communicate well too. So it is not the reason. The reason is they do not have to depend on interpreters. (Interview Family #7)

Several of the parents in the study experienced frustrations participating in English-dominant communities and workplaces because of their deafness. Deafness was perceived as impairment for some of the families. They experienced language barriers and challenges when trying to move up the career ladder which influenced their decisions to provide their children with cochlear implants. Families expressed their experiences this way:

Well, I think because my husband and I are frustrated with our career. We felt we have hit the glass ceiling. We've been unable to go pass the ceiling because of our deafness. It's hard and it has been a struggle for us, especially with the economy today and all. People have oppressed and discriminated us. I don't want my kids to have the same experience. We want more for them. We are fine having them signing but the fact that we live in a 'Hearing World,' they need to learn to read and write in English. (Interview Family #4)

Sometimes we've heard that deaf people have hard time getting promoted due to lack of accessibility (to spoken English) such as not having interpreters. My husband finally got promoted after a long period of time. He often wonders if he was able to talk fluently and understand more people and being involved more, and that would enable him to move up more. I wonder does being able to hear and speak make hearing people to be more receptive of his ideas and to get promoted more? I don't know. (Interview Family #6)

Based on my own experiences and what I have gone through, I've experienced limitations and frustrations with interpreters. I had interpreters in a hearing environment. I wanted to try a different field, and I learned oh, I have to stay within the Deaf World. It is more comfortable there. Outside of the Deaf World, I face more challenges and frustrations so I let it go. (Interview Family #7)

Based on the comments by the parents, they highly value their children learning English for multiple reasons. The most common reason why the families decided to provide their children with cochlear implants was so they could develop the ability to hear and speak in English. Families perceive English as a majority language in our society. For their children to survive and succeed in the future, they feel it is essential for their children to have strong English skills.

**Families' beliefs & perspectives on American Sign Language.** A majority of the families in the study also demonstrated strong beliefs about their children's development of American Sign Language skills, but some families still valued learning English more. Fourteen of the families (82%) in the survey strongly agreed with the statement, "I value for my child to develop American Sign Language skills," whereas only one family (6%) agreed and two families (12%) families were neutral about this statement. Families in the survey shared their level of expectations for their children to develop ASL skills on a continuum, from no expectations for their child to expecting their child to fully develop skills in ASL, socially and academically, in the future. Eleven families (65%) expect their children to eventually achieve the ability to express and understand ASL socially and academically. Five of the families (29%) only expect their children to have the ability to express and understand ASL socially, whereas one family (6%) had no expectations for their child to develop ASL skills. The responses on family's beliefs and perspectives towards American Sign Language from the interviews gave an elaboration of their views and opinions about ASL.

***ASL as a foundation for first language development.*** Consistently, families expressed that they felt it was critical for their children to develop a strong foundation in ASL at early age, especially before they received cochlear implants. Many of the parents shared their understandings about the importance of providing their children with an accessible language as early as possible. With a strong foundation in ASL as their first language, many families believe their children were able to acquire spoken language quicker than those who were not exposed to ASL before their cochlear implants were

activated. They emphasized this way:

I feel ASL is the key for early learning especially with babies. Because you can't receive cochlear implant until you are older, at least one year old or older. So, where is their first language before they get their cochlear implants? (Interview Family #1)

I support it [to learn ASL] because it provides language, which is signs, during the first two years of life. They should continue [using it] and not lose it. (Interview Family #6)

I think it was important for my sons to have a strong foundation in ASL as their first language. During their first year, they did not have any auditory access. So, what is the point of trying to teach them spoken language at that time? I used ASL to support them to develop a strong foundation in a language. (Interview Family #7)

I think it is important because I've seen studies that show [learning signs] lessens frustrations and they need language regardless. Who knows; CI may not work. They may need to have a backup. That's my opinion. Even though, at oral school, many of those who work with me say, 'No, they should not sign.' I told them, 'Too Bad!' (Shakes head) 'Too Bad!' That's

my philosophy...my son has a language before he received his CI and his spoken language skyrocketed faster than his peers. I believe it is because he already has a language already formed, and it was easy for him to 'match' from one language to other, and to take off after that. (Interview Family #4)

I feel blessed because I know ASL. My daughter has a foundation in ASL. Automatically, she has ASL ready. Her teachers said they felt ASL really supports her to pick up spoken language faster. The teachers suspected that. (Interview Family #1)

ASL helped my daughter to pick up on spoken language quickly. Our [speech] therapist noticed that my daughter picked up spoken English a lot more quickly than other deaf kids with hearing families who don't sign because of ASL. She was able to transfer to spoken language quickly. (Interview Family #5)

The families perceive ASL as an accessible language that builds a strong foundation for second language learning. They believe for their English skills to flourish, they must rely on their linguistic experiences with ASL.

***ASL as family's culture and identity.*** In the interview, families were asked what they valued about ASL. Families consistently reported valuing sign language because it is

a part of their identity. Families shared their opinions about sign language this way:

It is important and I being Deaf, it is my language and if they [my kids] refuse to use sign. Why? It is my language and it is their language, too. We just add language stimulus. That is fine. I disagree with those who forbid sign. No, it's important. (Interview Family #6)

I value PSE (Pidgin Signed English) because it is our language. When we go out, we can talk and understand each other. It is part of our background and history. It is who we are. It is part of our identity. Even though my husband and I grew up oral, I think we feel happy when we use sign language. We also feel connected to the community. We value that because there is a long history of sign language being passed on to now. (Interview Family #4)

I value ASL. It is part of the Deaf community and the language of the Deaf people. It is nice to have that skill to sign to be fully immersed in the language especially, ASL. (Interview Family #6)

A majority of the families shared their desire for their children to increase their ASL skills in order to develop a sense of belonging to the Deaf community which may enable them to have a positive identity of being Deaf. One parent responded, "I think ASL is

important for developing their EQ skills. They feel they are connected and they belong to the Deaf community” (Interview Family #8). Families also perceive ASL as a resource for developing positive self-esteem. They described it in this way:

In the Deaf community, you need that because it is an important part of who he is. It is a like a gift given to him because it belongs to him, too. It is a part of him, too, you know? (Interview Family #3)

I think the other role of sign language is to help my boys to feel good about themselves and know that there is nothing wrong with being Deaf. Sign language is a beautiful language. It helps with his education, self-esteem, and identity. (Interview Family #4)

*ASL as family’s primary language at home.* ASL was highly valued by many families because it is how they mainly communicate with each other at home. Some families who do not use spoken English rely on using ASL for effective communication among family members. One parent expressed, “For us, ASL is our first language because we use it more often in our home. It is how I communicate with my daughter, directly in ASL” (Interview Family #1). Other families shared similar responses about ASL as their primary language at home:

Ever since our children were born, we have always used ASL with them at



home. I want to be able to feel comfortable communicating with my children. We want the children to become native ASL users. ASL is part of them. (Interview Family #8)

I want my daughter to keep up with ASL all through her lifetime. It is an important part of the Deaf community; because she is deaf and so are her parents. That is valued. (Interview Family #5)

My daughters must use it [ASL] because of their Deaf parents. If no signs were used at home then how will they communicate with us? Maybe we won't understand what they are saying nor would they understand us when we are speaking. (Interview Family #2)

Sometimes I don't understand what my sons say to me. I ask them to give me signs so I can understand them. This facilitates communication and makes it flow more smoothly. (Interview Family #6)

[ASL provides us with] opportunities to communicate. Sometimes, she will talk orally to me and I would tell her I did not understand what she said. So that's where ASL comes in. It is a foundation to help her communicate. When my mother and I spoke to each other, sometimes I did not understand her and that was frustrating. I don't want that for my

daughters. ASL helps us to communicate fluently. (Interview Family #2)

*ASL as a resource for literacy skills, language and cognitive development.*

Several families perceive ASL as a resource for their children's language and cognitive development. Their responses include how using ASL requires different parts of the brain which enhances their cognitive development and demonstrates how ASL can be a resource when trying to understand complex concepts. Families shared some examples of how ASL reinforces children's language, literacy, and cognitive development:

ASL is very visual and I believe it helps them to develop concepts (about the world.) They learn to develop skills to maintain eye contact and to use visual attention for information. When they were babies, they began to develop that skill. I signed to them. (Interview Family #8)

Some speech therapists have recommended using a limit of only ten signs with my son. I said, "No, he needs more than 10 signs." How can they understand their surroundings if you limit to only ten signs?!? He will be confused if he was limited to only 10 signs. The therapist believed he can't learn spoken language while learning sign language, but in reality, he can learn both languages. (Interview Family #6)

I believe it is helpful to use ASL to support their literacy skills. It helps

them to visualize concepts. After understanding the concepts in ASL, it can be helpful for them to transfer their understanding of the concepts in ASL to the text while reading. (Interview Family #8)

Unfortunately there are hearing parents who do not know fully how culture is involved in language. They think just by getting CI or hearing aids that will solve the problem. They don't know that sign language would help with language development. Sign language is great and provides a good foundation. (Interview Family #2)

I am more conscious that ASL has some amazing features such as classifiers, providing the ability to understand complex concepts, and so forth, which would reinforce their critical thinking skills to analyze their world or whatever. (Interview Family #7)

Families appear to have some understanding about ASL but also some misconceptions. Concepts can be understood in any language. ASL is fully accessible and understandable, yet it can be misunderstood as a “conceptual language”. The lack of full understanding of ASL as a language can influence how families perceive the language and bilingualism, in general.

*ASL as a beautiful language.* Several families expressed appreciation for the unique features of ASL. Families embrace their children's ability to enjoy ASL as a

cultural language through storytelling by using classifiers and dramatic facial expressions:

Mother: It is part of Deaf Culture. Father: Deaf Culture (nodding), History that is passed down. It is good for storytelling and all that. (Interview Family #)

I value ASL as a language because it is a beautiful language. It has its own grammar and syntax, its structure, its rules, everything! It contributed so much to the theater and to the arts through storytelling and facial expressions. I love it and I want to show my daughter that. We watched several DVDs related to ASL storytelling like the one by Peter Cook, the kid version one. The DVD stories were told in ASL. My daughter was fascinated with it. That's one coolest thing about ASL. It's beautiful. A lot of facial expressions and classifiers were used in the DVD. I do want her to incorporate those skills, like using classifiers. (Interview Family #1)

We enjoy going to ASL story events. We are fascinated with it. We'd show our sons ASL stories through You-Tube videos and other ways to expose them to ASL. (Interview Family #4)

Based on families' statements and opinions about ASL, they demonstrate positive

views and appreciation towards ASL as their language. They are proud to provide ASL at home for their children so they can develop skills in ASL in order to maintain a positive identity as a deaf child, to have effective communication among family members, and to gain a sense of belonging in the Deaf community. ASL is frequently perceived from a language-as-resource orientation.

**Families' beliefs and perspectives on bilingualism in ASL and English.**

Families demonstrated strong beliefs and some knowledge about bilingualism for their children with cochlear implants. Families first discussed their experiences as bilinguals and then shared their understanding as well as their opinions about bilingualism for themselves and their children.

*Parents as bilinguals.* Parents' beliefs and perspectives about bilingualism may stem from their own experiences growing up and learning two or more languages. All of the parents in the study use two or more languages. In the survey, sixteen out of thirty-three parents' first language was ASL and their second language was in English. Fifteen parents learned English as their first language and ASL as their second language. The two remaining parents learned languages other than ASL and English as their first language and eventually learned ASL and English as their subsequent languages.

Parents' background and educational experiences were explored during the follow-up interviews. The parents' background and experiences varied. Several of them grew up oral and learned sign language when they became older. Others used ASL since they were young. A majority of the parents learned not only written English but spoken English as well. Most of the parents came from hearing families while a few of them

came from deaf families. The parents shared their experiences learning two languages while growing up:

Both my husband and I have deaf parents...I use ASL and written English only. I do not speak or hear anything. My husband can hear, speak, write and sign. He spoke more than signing while he was growing up. He does have good skills in signing. He was exposed to a spoken environment more than to a signing environment. (Interview Family #7)

I learned ASL from my Deaf parents. My husband primarily used Signed Exact English (SEE) until he entered college and began to transition to ASL. With our current family, we use ASL. (Interview Family #8)

My husband and I were born deaf, but both of our families are hearing. All of them are hearing. We are the only ones who are Deaf in our families. I used ASL while growing up and signed fluently with a strong foundation of English. My husband mostly used spoken language with some sign. His father does not typically sign, so he spoke more and used hearing aids often. (Interview Family #1)

There's no deafness in my family. I grew up oral and signing was not allowed at home. It was forbidden. It was not until I reached high school

that I learned to sign ASL and became fluent in signing. (Interview Family #3)

In Family #4, the mother was born hearing and used spoken language until her hearing progressively declined at around sixteen months old. Her hearing loss dramatically declined at around twenty years old at which point she began to learn ASL.

Since the parents are dual language users themselves, they demonstrated knowledge on the importance of learning and using two languages in their lives. Their experiences and knowledge may have been instrumental in making their decisions on choosing cochlear implants for their children and sustaining bilingualism in ASL and English with their children.

The parents also have different educational backgrounds. A majority of the parents were mainstreamed full-time in regular schools and some attended schools for the Deaf. Their language use in the classrooms also varied. The variations of language use in the parents' educational experiences included using spoken English only, simultaneous communication, communicating through ASL via sign language interpreters, and direct communication through ASL.

Several parents felt their familial and educational experiences were also a factor in making decisions on cochlear implantation and language choices for their children. A majority of the parents in the interview grew up in a mainstream setting and were exposed to spoken language while growing up and they wanted similar experiences for their children. Several parents shared their perspectives this way:

I believe it depends on a variety of backgrounds that people have who make the decisions whether to provide their child with cochlear implant or not as well as deciding which communication mode to use. It is interesting it would depend on the parents' background. For instance, if the parent grew up using cued speech then they'd choose to teach cued speech to their child. If the parent went to deaf schools and used ASL, then their children will also attend deaf schools and use ASL, too. I noticed parents' experiences would be similar to their children's experience, like with my daughter and me. I think it's natural for the parents to do that. (Interview Family #1)

We proceeded with CI especially with our background and our experiences. I did not want her to have a hard time, as her father did. I wanted to give her the opportunity and the tool to help her to be able to hear, to communicate in the future, and to be able to switch between both worlds, especially with ASL and with spoken languages, too. (Interview Family #2)

Parents were asked to describe what it means to be a bilingual in order to further explore their perspectives of bilingualism. Many of the parents have misconceptions about bilingualism and believed in order to be bilingual; one must be have native-like



proficiency in two or more languages. Grosjean (2011) and Baker (2003) argued that one does not have to attain fluency in two languages to be bilingual. Many parents in the study set high expectations on what it means to be a bilingual, to be *equally* fluent in two or more languages. One family discussed what it means to be a bilingual; “My bilingualism is not equal. I have a high expectation of myself; I want to be equally fluent in both languages” (Interview Family #6). Other families expressed similar notions:

My son is more bilingual than me. It is because my son was exposed to ASL more than I. He is probably more fluent in ASL than I am. I think. Well, bilingual means having two languages, ASL and English. I guess.  
(Interview Family #3)

The goal is equal competency-signing fluently like a deaf person and speaking fluency like a hearing person. That is equal competency and that is the goal. I am not... my signs are lower than a deaf person’s and my English is even lower. I know I don’t have perfect English skills.  
(Interview Family #6)

No [I’m not a bilingual]. I only use ASL, but I do write in English. Well, maybe, yes. I am. (Looks unsure). My husband (finger spelled; YES).  
(Interview Family #8)

Well, we are not fluent in sign language but we do sign. When we go out to see our friends, we sign all the times. Yeah, I think we are bilinguals.

We are an odd bilingual family. (Smiles) (Interview Family #4)

I don't know. It is hard for me to say. I have a cochlear implant so on some days I speak all day and on some other days I sign all day. Both are two different worlds. Sometimes I feel like I am on the fence between both worlds. ASL uses a different part of the brain- more of a visual language than for English, which is conceptual-based. I think. (Interview Family #3)

A mother in one interview first believed she was not a bilingual because she uses ASL and reads and writes in English. She believed being a bilingual means to be able to use ASL and speak, read, and write in English. After she reviewed the interview transcript, she sent an email to clarify her definition of what a bilingual means. She described herself as a bilingual, bicultural person because she signs in ASL and writes and reads in English whereas her daughter is a "bimodal bilingual," because she uses two modalities: spoken and sign. Few families recognized themselves to be bilingual because they are equally fluent in both languages, "Yes (I am a bilingual). I am fluent in reading and writing in English and in ASL, as well" (Interview Family #7).

Based on parents' comments, it appears they have a certain understanding of what it means to be bilingual and have established high expectations for themselves and their children to become fluent in both languages. This is likely one factor why families want

their children with cochlear implants to become equally competent in spoken language as well as fluent in ASL and written English.

***Families' definitions of bilingualism.*** Families elaborated more on the functions of bilingualism in the follow-up interviews. For some parents, being bilingual does not only mean to have the ability to use both languages, but also to be able to function in both deaf and hearing communities. Also, bilingualism for most families meant to have the ability to switch between both languages conveniently. Parents described it in this way:

To me, it means the ability to switch between two languages like ASL and English. It is important to say that both are equally important. It is because the world functions mostly in English, writing and reading. English is an important skill to have and signing in ASL, of course. That is bilingual. It is cool to be able to sign fluently in ASL and to be able to read and write in English. I believe it is important to be able to do that. (Interview Family #2)

They can transfer skills (from ASL) to learning spoken language. I mean add spoken language to their language development along with ASL development. (Interview Family #7)

It means fluency in English and ASL and having the ability to function in deaf community, have deaf friends, and being involved in the community

and at the same time in a work-related or hearing job to have the ability to function in the hearing world in the workplace, stores, neighbors, and be able to talk with hearing people and read and write in English, too. It is important to me to be able to read and write in English. (Family #6)

***There are benefits to bilingualism.*** Many families commented on the benefits of bilingualism. Families believed that by supporting their children to be bilingual, they were providing their children with all the tools they need to be successful. From the survey, thirteen (77%) of the families strongly agree that learning two or more languages has cognitive and academic advantages whereas three (18%) families agree and one family (6%) was neutral with this belief statement. Families in the interview elaborated more on the advantages of bilingualism. They shared that one of the advantages of bilingualism is the ability to transfer knowledge from one language to other and to participate in two communities. Families discussed the advantages of bilingualism this way:

It is important to have everything, you know, to have all tools like sign, talking, equipment you can choose. Don't have to limit yourself. I think.  
(Interview Family #3)

I think bilinguals have the ability to understand languages better. For example, signing a word to understand how to write it in English. They are

able to make connections with both languages. (Interview Family #8)

Also, the ability to code switch between both languages is amazing.

[Bilinguals] are more advanced than ones who only use one language, spoken language. [Monolinguals] have fewer opportunities to use and borrow concepts from other language. I see having two languages as an advantage. (Interview Family #7)

To further explore families' understanding of bilingualism, in the survey, families shared their opinions about learning two languages and if doing so could cause language delay and confusion (which is a common myth about bilingualism). Families had mixed opinions about the possibility of language delay when learning two or more languages. Eleven families (65%) strongly disagreed and four families (24%) disagreed with this statement, whereas, one family (6%) agreed with and one family (6%) was neutral about this statement.

Families shared their opinions on how one language can reinforce another language. From a bilingual stance, there is a strong relationship between ASL and English; there is evidence indicating one language can supplement the other. In the survey, more than half of the families (ten, 59%) mostly agreed and three families (18%) agreed with this belief statement; "I believe sign language reinforces spoken language development." Three families (18%) were neutral about this belief statement while one family (6%) disagreed that sign supports spoken language development. However, when

asked if families agree with the belief statement, “I believe spoken language supports sign language development,” the families had mixed opinions, ranging from strongly agree to strongly disagree. Six families (35%) strongly agreed and three families (18%) agreed with this statement, whereas, four families (24%) were neutral, two (12%) families disagreed and two families (12%) strongly disagreed with this statement.

To delve deeper into families’ beliefs about the benefits of bilingualism, families were asked to elaborate on their perspectives about how sign language can reinforce spoken language development and vice versa. Families easily discussed how sign language can support spoken language development but were frequently stumped when trying to explain how spoken language can support sign language. Their responses were:

ASL helps support reading and writing. (Interview Family #2)

I believe it is helpful to use ASL to support their literacy skills. It helps them to visualize concepts. After understanding the concepts through ASL, it can be helpful for them to transfer their understanding in ASL to the text while reading in English. (Interview Family #8)

I think sign language also helps with speech. Like, at one time when my son did not understand what I was saying, “Please go get some potato chips.” My son misunderstood me. He was young, about 2 years old at that time. He walked into another room and got a [toy] piano, instead. I told

him, that's not it and explained to him more clearly. It is more visual-oriented. Signs make it easier to develop and understand concepts.

(Interview Family #4)

Hmm, how spoken language can support sign language is a good question.

(Thinking aloud: how can spoken language support sign language?) I guess one can use concepts learned through spoken language to transfer to sign language. I am like "Cool! You learned that through spoken English and how it is transferred to ASL." That's one possibility. (Interview Family #7)

I think somehow spoken language supports signs-some kind of rule there.

I am not exactly sure, as I am not a linguist. I know that sometimes when my children don't know the sign for the word, they will try to sound out the word. They use both languages to support each other. (Interview Family #6)

***Bilingualism is the goal.*** When asked what are families' goals for their children to achieve in the future, multiple responses were for their children to become fluent in both languages and be able to function in both worlds, in the hearing and deaf communities. Seven out of seventeen families in the survey said becoming fluent in ASL and English is the goal when asked the open-ended question, "What are your goals for

your child to achieve in the future?” Families wrote their responses this way:

I would like her to be fluent in both spoken English and ASL. So, she could participate independently in both hearing and Deaf communities.  
(Survey Family #2)

[To have] better opportunities to interact in the community-especially in the areas of employment, socializing, and communication. I want my daughter to be able to have full access to both deaf and hearing worlds. To be able to blend in with both deaf and hearing worlds and to be able to communicate with anyone. (Survey Family #4)

We would like our child to be able to have freedom in any classroom to learn in any way they prefer, by listening or in ASL as long as they have full access to language and communication. We ultimately would like for our child to feel confident and independent to achieve a good quality of life, good jobs, and education in either the Hearing or Deaf worlds or both and never to have to struggle with communication with different people.  
(Survey Family #5)

Other examples of responses were for their children: to “be happy”, “to complete college and to be successful in life”, “to have the ability to advocate for their rights”, and



“to take advantages of any and all opportunities available.” Families in the interviews further elaborated on their goals for their children to become bilingual in ASL and English, saying:

My goal is for her to be equally skilled in both languages so she can interact equally well in the hearing world and in the deaf world. That is my goal and so far it seems she is ‘on target’ for both. (Interview Family #5)

I want to see them have the ability to decide which language they want to use. Also, I want them to take the opportunity to use both languages. I know that even if they sign fluently, they will have many career opportunities. For example, they could become interpreters if they want to. If they reached mastery in both languages as well as having good auditory skills, they could become an interpreter. (Interview Family #7)

To be a well-adjusted deaf adult and to be happy. To find a career that he enjoys. I told him that he has choices. He can, if he wants, to work with hearing people in the hearing world or he can choose to work in the deaf world. I told him that it doesn’t matter and that is his choice. He says he prefers to work with deaf people. That is what he desires. (Interview Family #3)

I want to give both worlds to my children. I hope we give them plenty of tools to develop strong language in English and to be able to get any jobs they want. (Interview Family #4)

With implants, you don't have to give up one or the other. You can have both. Maybe that's why parents don't think of including both languages. I've seen kids at school where their parents don't sign at home and those kids are way behind. It sad to see that and it touches me. Once (son's name) had a roommate who didn't want to go home because his parents don't sign at home and because of that he hated to go home. It made me feel bad for him. In our home everyone signs so we have access. It is important to have everything. (Interview Family #3)

Families also shared their beliefs on how to maintain balance when using both languages at home. Several families feel it is critical to keep both languages separate in order to prevent language confusion. On the other hand, some families feel mixing both languages will not cause harm. Families also discussed how they value balancing the exposure to both languages throughout the day:

If only ASL is used all day, it would be a concern. At home, he is exposed to ASL but where is his right to acquire spoken language? That is why I want to provide them with access to both languages. (Interview Family #7)

My goal is to eventually learn to separate the two languages and be able to use ASL wholly with voice off and not have to stop and think about when to use voice or signs, just to use only signs and not worry about voicing. (Interview Family #6)

I believe in keeping both languages separate. If signs were included at school it would make my son forget to practice his spoken language skills. (Interview Family #8)

**Summary.** Question 1 examined parents' perspectives and beliefs about ASL, English, and bilingualism. Data derived from the survey and the interviews shows parents indicate positive views and beliefs regarding both languages and on maintaining bilingualism in ASL and English with their children. Most parents in the study highly value their children's development of English and ASL, but for some families, ASL was not as highly valued as English. Overall, families demonstrated some understanding about language development but had several misconceptions about ASL typology and bilingual development.

## Question 2

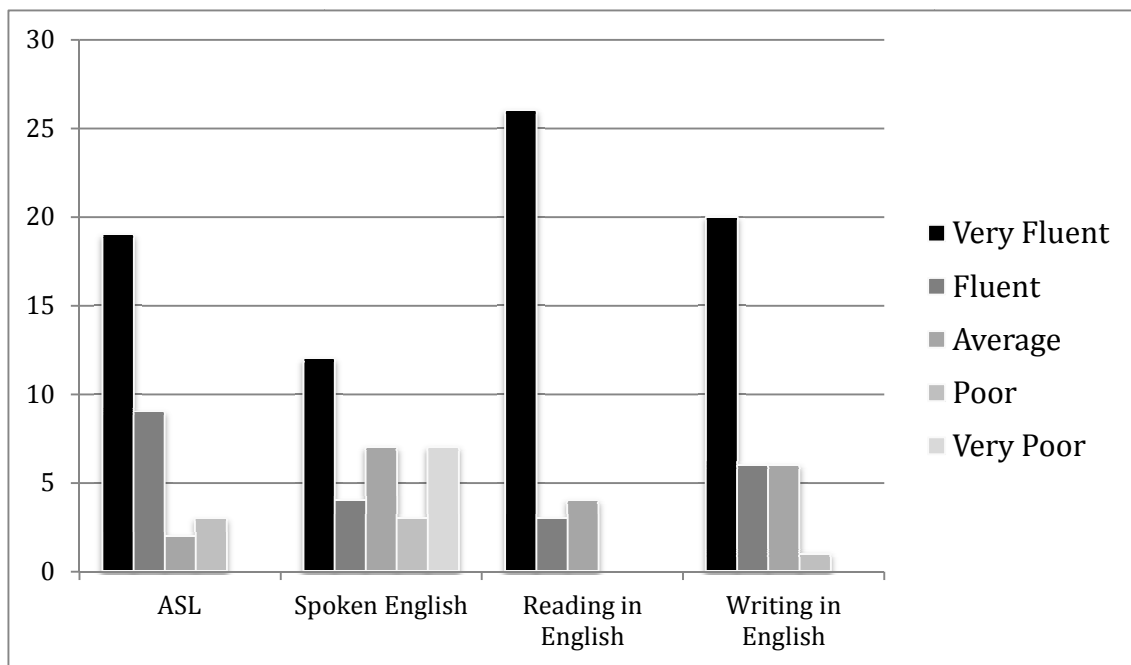
Question 2 examines parents' perceptions of their own language abilities in American Sign Language and English. This section includes families' perceived ratings of their language abilities in ASL and English as collected through the survey. The families were asked to rate their perceived language abilities using a numeric scale from 1-5, from very poor to very fluent. This was investigated to see if there is a correlation between a family's perceived language skills and their beliefs about bilingualism in ASL and English.

**Families' perceived abilities in ASL.** Parents' ratings of their and their spouses/partners' ASL abilities varied. More than half of the parents (58%), nineteen out of thirty-three parents, perceived themselves to be very fluent in ASL. Nine parents (27%) rated themselves to be fluent in ASL, two parents (6%) rated themselves as average, and three parents (9%) believe their ASL abilities to be poor.

**Families' perceived abilities in spoken English.** Parents rated themselves as mostly fluent in spoken English. Twelve parents (36%) perceive their spoken English to be very fluent, four parents (12%) consider themselves fluent, seven parents (21%) rated themselves as average, three parents (9%) said their spoken English was poor, and seven parents (21%) said it was very poor.

**Families' perceived abilities in reading in English.** Twenty-six (79%) out of thirty-three parents perceive themselves to read English "very well"; however, three parents (9%) rated themselves as reading just "well", and four (12%) rated themselves as having "average" reading skills.

**Families’ perceived abilities in writing in English.** Twenty (61%) out of thirty-three parents rated themselves as writing in English “very well”, six parents (18%) as writing “well”, six parents (18%) as “average”, and one parent (3%) as “poor” in their writing skills.



*Figure 4. Parents’ perceived language abilities.*

**Summary.** Overall, most parents perceived their ASL and English skills to be fluent. Some parents expressed their challenges with their ability to speak in English in during the interviews. This leads to the third question of how parents’ perceptions of their language abilities may impact their beliefs regarding bilingualism in ASL and English for their children.

### Question 3

Question 3 asks if there is a relationship between parents' perceived language abilities and their beliefs regarding ASL and English development. Correlations between parents' perceived language abilities and their belief statements about ASL, English, and bilingualism are shown in Table 5. Of the twenty-one correlations, three are significant at the 0.05 level (2-tailed): 1) Parent #2 ASL ratings and belief statement, "I value for my child to develop ASL skills," ( $r=.58$ ); 2) Parent #2 spoken English ratings and belief statement, "I value for my child to develop ASL skills," ( $r=-.51$ ); and 3) Parent #2's spoken English ratings and belief statement, "I believe spoken language reinforces sign language development," ( $r=.49$ ). Three correlations are significant at the 0.01 level (2-tailed): 1) parents' ASL ratings and belief statement, "I value for my child to develop ASL skills," ( $r=.64$ ); 2) parent's writing skills and belief statement, "I value for my child to develop ASL skills," ( $r=.70$ ); and 3) parent's writing skill ratings and belief statement, "I believe sign language reinforces spoken language development" ( $r=.70$ ).

Table 4

*Correlations between Parents' Perceived Abilities in ASL & English and Belief Statements*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Parent #1 ASL Rating		.35	-.58*	-.35	.19	-.29	.23	-.38	.19	.64**	c	.17	.27	.40	.32
2. Parent #2 ASL Rating			-.18	-.22	-.18	.39	.32	.25	-.76	.58*	c	-.03	-.47	.25	.02
3. Parent #1 Spoken English Rating				.46	.10	.29	.27	.32	-.09	-.22	c	.15	-.06	-.18	-.39
4. Parent #2 Spoken English Rating					.27	.60*	-.25	.58*	.27	-.51*	c	.11	.49*	-.25	.18
5. Parent #1 Reading Rating						-.17	-.13	-.23	-.06	-.11	c	-.19	.46	-.13	.16
6. Parent #2 Reading Rating							-.19	.90**	.02	-.30	c	.07	-.10	-.19	-.00
7. Parent #1 Writing Rating								-.24	-.13	.70**	c	.38	-.18	.64**	.29
8. Parent #2 Writing Rating									-.04	-.40	c	-.04	-.01	-.17	-.05
9. Belief #1 "I value for my child to develop spoken English skills."										-.11	c	.34	.46	-.13	.16
10. Belief #2 "I value for my child to develop ASL skills."											c	.41	.22	.70**	-.04
11. Belief #3 "I value for my child to develop reading and writing in English skills."												c	c	c	c
12. Belief #4 "I believe sign language reinforces spoken language development."													.37	.59*	-.05
13. Belief #5 "I believe spoken language reinforces sign language development."														.12	.21
14. Belief #6 "I believe children who learn two or more languages have cognitive and academic advantages."															-.16
15. Belief #7 "I believe learning two or more languages can cause language delays."															

\*Correlation is significant at the 0.05 level. (2-tailed).

\*\*Correlation is significant at the 0.01 level. (2-tailed).

c-Cannot be computed because at least one of the variables is constant.

Regression analysis on the correlation between family's belief statement, "I value for my child to develop ASL," and on parents' perceived ASL and English skills is significant ( $F(4, 12)=9.16, p=.001$ ).

The significant correlations between families' perceived language abilities and their beliefs on ASL and English were mostly related to parents' opinions about valuing for their children to develop ASL skills. It appears there are relationships specifically between parents' perceived language abilities in ASL, spoken English, and writing in English and their opinions about valuing their children to develop ASL skills.

The findings from the interview reflected differently from the results of the survey. It was indicated regardless of parents' perceived language abilities; majority of the parents have high expectations for their children to develop skills in both languages. Families shared their perspectives about their language abilities and their opinions about valuing for their children to develop skills in ASL and English:

I also value English, especially having the ability to read and write in English. It is an important skill for their future careers. There are more demands in being fluent in English now and it is important for them to have good English skills. For example, I want them to feel comfortable sending an email and not having to worry about how to write in appropriate English. I myself struggle with writing emails. It is hard for me. It is easy for my husband. On the other hand, my husband does struggle with his social skills especially communicating with people face to face. He communicates more effectively through emails and through



written English. I am more fluent at socializing with people through ASL. So, I want my kids to have both abilities and to be comfortable to do both as well.

That's our goal. (Interview Family #8)

The goal is equal competency – sign fluency like a deaf person and speaking fluency like a hearing person – that is equal competency and that is the goal. I am not...my signs are lower (than a deaf person) and my English is even lower.

I know I don't have perfect English. (Interview Family #6)

Oh – one thing (the speech therapist) noticed was my daughter's inability to understand sarcasm or Idioms. I have not been exposed to that area of spoken English. Many hearing learn from listening to hearing parents but I didn't. This means I need to be able to explain the meanings of such things (to my children) about English. That is a challenge for me. It is different from ASL, idioms, hints, jokes, you know, I need to work on those. My daughter needs to work on that. My daughter needs to learn the "hearing culture" that involves rhythms, idioms, jokes, etc. I am not sure about KODAs (Kids of Deaf Adults) if they have similar experiences. (Interview Family #5)

Well, we are not fluent in sign language but we do sign. My husband and I are not skilled in ASL. However, we enjoy going to ASL story events. We are fascinated with it. We showed our sons you-tube videos of stories told in ASL and other

ways to expose them to ASL. Our ASL skills are not strong. We are more English-based, PSE. (Interview Family #4)

My son is more bilingual than me. It is because my son was exposed more to ASL. He is probably more fluent in ASL than I am I think (Interview Family #3)

I didn't want her to have a hard time (as did her father). I wanted to give her the opportunity, as a tool to help her to be able to hear, to communicate in the future and to be able to switch with both worlds, especially with ASL and with spoken languages too. (Interview Family #2)

My husband says himself that it is good to know how to speak well so that he could communicate well with hearing people in his workplace. He uses hearing aids and can communicate well with hearing people. He can connect with them easily through speaking. That is something that I can't do but I can still communicate with hearing people through writing and reading in English. However, I still feel I do not fully fit in with them. He feels can fit in with them easily because he is able to speak. I thought to myself, he is lucky. That is why I value English. (Interview Family #1)

**Summary.** There are significant correlations between families' opinions on valuing for their children to learn ASL skills and their perceived skills in ASL, spoken

English and writing in English. Families in the interviews expressed high expectations for their children to develop skills in ASL and English, regardless if the parents perceived their language abilities to be fluent or poor.

#### **Question 4**

Question 4 explored how Deaf families' support their children's language development in ASL and English at home. Families' experiences about language use at home were gathered through the survey and interviews. Families shared a variety of ways of supporting their children's language development in ASL and English at home.

**Families' language practices.** A family's language practice ranged on a continuum from English-oriented to ASL-oriented. However, a majority of the families in the study use both languages with their children at home. In the survey, eight (47%) out of seventeen families communicate through ASL and English separately, whereas four families (24%) use sign language and English simultaneously at home. Four of the families (24%) use ASL only at home and one family (6%) communicates only through spoken English at home (see Table 5).

Table 5

*Language Use in the Home*

N=17

<i>Type</i>	<i>Numbers of Families</i>
Families use English only.	1 (5.9%)
Families use English and sign language simultaneously.	4 (23.5%)
Families use ASL/English separately.	8 (47.1%)
Families use ASL only.	4 (23.5%)

***Language use before cochlear implants.*** From the interviews and the survey, all of the families included signs in their homes with their children after they were born. Most of the children in the study received their cochlear implants after they reached their first birthday; therefore, they did not have access to spoken language beforehand. The families demonstrated awareness of this need for language input and provided their children with ASL as early as possible. Almost all of the families in the interview used ASL with their children after they were born but in different ways. Some families used simultaneous communication, signing and speaking at the same time, while some used ASL only. Families described how they used both languages with their children after they were born:

I started signing with my daughter since day one. I started signing with her since the day she was born. She has been watching us ever since.

(Interview Family #1)

Ever since our children were born, we have always used ASL with them at home. I want to be able to communicate with the children because I cannot speak or hear. I want to be able to feel comfortable communicating with my children. We want our children to become native ASL signers. ASL is part of them. (Interview Family #8)

I signed fully with him. He did not have a CI until he was 11 months old anyway. His hearing aids did not provide him with much benefit.  
(Interview Family #7)

I had to teach my son signs, to teach him to be visual. I had to teach him and it really was a big adjustment. I had to use spoken and sign languages, it was more like PSE, more English signing and talking at the same time with him because I wanted him to keep talking. It was interesting because he started talking when he was 14 months old, because he was hearing.  
(Note: The son became deaf when he was 2 ½ years old). So I had to keep talking and signing both. (Interview Family #3)

***Language use after cochlear implants.*** Even after the children had their cochlear implants activated and had more access to spoken language, all of the families in the interviews continued to include ASL in their homes. Several families either added or

increased the use of spoken language in their communication at home. Also, children were exposed to spoken language through receiving speech therapy services and attending oral programs. Children, themselves, began to include spoken language at home by using both languages which influenced how families communicated with each other. A family discussed how their daughter began to code switch between both languages after she started attending oral school:

Once she started going to school, she immediately could go back and forth between both languages. She knows when to use ASL with deaf people and when to use spoken language with hearing people. She could go back and forth between both languages easily. She did that by herself. No one taught her. She developed that instantly. When she sees me at the school, she will start signing with me. At her school, she sees all people speaking then she would expect to speak with them. That is how she functions. In fact, we use ASL more at home. I would say 90% of the time we are using ASL at home. (Interview Family #1)

Other families shared how they usually communicate with each other at home:

Talking about signs only, he uses it with me a lot. Sometimes he might be in the mood to talk (using speech). Sometimes we don't use signs to each other but talk verbally to each other, listening to each other because we

both use cochlear implants. Isn't that cool to think, oh, we are talking to each other not signing to each other. At other times, it is just signing only. I've noticed that when we go out to eat at a restaurant, we use signs and don't use our voices with each other. It can get noisy in restaurants and we cannot even hear what we are saying so we turn our voices off and sign to each other. Or when we are together and we don't want other people to know what we are saying, we'll use signs. (Laughs) (Interview Family #3)

We use signs more, the highest percentage of the time we use signs.  
(Interview Family #2)

I mostly used Sim Com. Sometimes I felt lazy and I would not use my voice and I would sign with them instead. With my son, he is more oral. With my daughter, I usually sign more with her. I think it was because I stayed at home with her. With my son, I was working at that time. It is easier for me to use signs. My daughter use signs more than my son.  
(Interview Family #4)

We use ASL at home. Sometimes, her deaf friends will come over to the house to play with her; they use ASL to communicate with each other.  
(Interview Family #5)

Both boys will code switch between both languages at home and the extent of this depends on their dad's hearing abilities. It goes up and down. My kids will test to see if their dad can hear them. They'll yell at him even louder to get his attention. They'll speak, but they mostly sign. Their dad tends to speak with them, but he signs sometimes. When I'm around, he'll sign with them. He will choose which language to use depending on his comfort level. While reading aloud a book, he tends to speak with them 100% of the time. While chatting, he will add some signs sometimes. (Interview Family #7)

If we are not using our implants, we sign more and talk less. If we have the implants on, then we will talk and sign at the same time. (Interview Family #3)

I do use signs sometimes. If I don't have my CI on, then I will use full signs. They do understand me in ASL. When we discipline our children, we prefer to use voice only. When explaining things, we use sign-supported speech. I tend to use either voice only or Sim-Com with my children. My husband uses ASL only. (Interview Family #6)

***Children's language use.*** Children's language use varies during the day, depending on different factors such as with whom they are interacting, whether they are



at home or at school/daycare, whether they are using cochlear implants or not, or simply what kind of mood they are in. It was mentioned that children frequently go and back and forth between both languages throughout the day. Families described a typical day's routine and how their children use both languages depending on a variety of reasons:

From night to morning, they take off their cochlear implants. It is tiring for them to listen all day at school. When they take them off, they can relax. I am the same way myself. I like being able to have choices about when to wear them or not. So when they have them off, it means tapping on shoulders to get each other's attention, banging on a table or flicking lights on and off. When they have their CI on, we still use signs except we call out to each other for their attention. Mainly we use signs. Of course when we take our CI off, we use signs. (Interview Family #2)

In the mornings, when she wakes up, she does not usually put on her CI until she gets to school at around 8:30am. She'll leave it on all day until around 3pm. She even takes a nap with it. At night, it depends on her mood. We do not force her to use her CI. Sometimes, she'll take it off during the evenings. She signs most of the time with us and speaks at school. (Interview Family #1)

Usually in the mornings, she uses ASL, but she speaks with her hearing brother. She does not sign to him or to her hearing sister. As for weekends, in the morning she tends to take her time with putting on her CIs because she can sign with us. But on school days, she puts them on right away in the morning and leaves them on all day until bedtime. Sometimes she leaves them on during bedtime so she can listen to music until she falls asleep. I will come in to take them off. (Interview Family #5)

My daughter also speaks on the phone with her grandmother and grandfather. She hears well. She interacts well with all of our relatives while my husband and I just sit around. We barely communicate with them by using fingerspelling or writing on paper. My daughter interacts well with her grandparents, cousins, aunts and uncles. This is not like us where we had to get by while growing up. Communication with them tends to be limited. (Interview Family #5)

On weekends, they typically use signs except when they interact with hearing friends during birthday parties, play dates, and etc. There are some events that involve Deaf people. Recently, they attended a Deaf event and they were able to understand and express signs. Right now they speak more than sign. (Interview Family #6)

My stepson usually signs with his friends and family. He uses spoken language at school. My other son does not sign all day at his preschool. When he comes home, he does not sign much, just a little bit. He'll talk in an exaggerated way. I encouraged him to talk normally. At the dinner table, he usually talks and signs at the same time. It depends on his mood. (Interview Family #4)

When she talked with our neighbors, they were able to converse with each other well. Sometimes, I don't understand some of the words she uses. She can even understand what they are saying without reading their lips. She talks with all of my family members. With us, she signs but in the past when she went out to parties with her deaf friends, she tried to speak with them. We told her to sign to them. She responded, "Oh!" (Interview Family #2)

He talks all day at daycare from 8am to 4pm. When he gets home, he will sign but sometimes he switches to speaking. He mostly code switches between both languages. Sometimes he talks to himself. He talks more clearly. He can pronounce numbers from 1 to 7 correctly. (Interview Family #8)

**Children's perceived language abilities.** A majority of the families in the survey perceive their children's ASL and English skills to be either on par with or above their peers. Families rated their children's language skills in ASL and English on a continuum from below age-level to above age-level. The results indicated that five out of twenty-four children are perceived by their parents to be below their age-level when it comes to their ASL skills. Meanwhile, seven children are perceived as at on their age-level and twelve children as above their age level for ASL skills. As for spoken English skills, two children are perceived by their parents to perform below their age level when it comes to their spoken language skills. Eight children were rated to be at their age level and fourteen children were rated above their age level on spoken English skills. Families' perceptions of their children's writing and reading skills in English varied as some young children are at the emergent literacy stage and still developing their reading and writing skills. More specifically, two children were rated as emergent by their parents in terms of their writing and reading skills; seventeen children are rated to be on their age-level in their reading and writing skills, and five as proficiently literate.

During the interviews, the families elaborated on their beliefs regarding their children's abilities in both languages. Several families feel their children are more fluent in one language than the other language. It was not frequently indicated that their children were equally fluent in both languages. In addition, several families shared how their children's abilities in both languages shifted over time. For instance, at the beginning, a child's signing skills were at his age level, but after he received his cochlear implants and began to acquire spoken language, his spoken language surpassed his ASL

skills due to increased exposure to spoken language. Glimpses of several families' perceptions of their children's abilities in both languages are described below:

Language mastery is fluent. Reading is at high school level. His level of language was always good because I think because he had exposure to language at home with signing anyway. He always did well. Even with an implant his language didn't just take off because he always did well.

He is really fluent (in ASL). Earlier his signs were more "English-based" - signed English.

He is on level (with his spoken language) and speaks well. Hearing people can understand him and expressed that his speech is clear and good.

He can't use the phone. I don't think he feels confident using the phone yet. I try to encourage him. When we are in the car and I am driving and he is sitting in the back of the car talking with me, we can understand each other. We have other ways to communicate such as emails, texting, and other ways, too. (Interview Family #3)

My son received his CI when he was one year old. My stepson was 3 years old when he received his CI. I think that makes the difference. My

son is now in preschool and he will start Kindergarten this fall. He is already fully mainstreamed. His speech is well developed. He has mastered all sounds except for “th” sounds. Wow, that’s impressive. I’m really proud of him. He is very happy.

I think my stepson is pretty advanced with signing and speaking. He is very smart. As for my other son (name), he is not skilled in sign language. He is still young. He still has opportunities to interact with deaf kids at camps and other events. He is doing well with his spoken language. His vocabulary is on track. He is only 4 years old.

Based on his recent IEP report, my son is a bit above his peers in spoken language. It is funny, like, he’ll know most of terms related to space and planets, but he will not know the name of cookies his mom sent with him school like, Fig Newtons. So, he has pockets of intelligence just like any other 4 years olds. I was told he is a bit more advanced than his peers [in his language]. (Interview Family #4)

My daughter’s spoken language is not delayed. I did ask her speech therapist and teachers about that and they did not notice any major delays in her spoken language. Oh-one thing they noticed is her inability to understand sarcasm.

She is on the same level as her peers within the range on her ASL. I need to observe her signing more, though. I suspect she needs to work on expressing herself more in ASL. She understands me when I sign in ASL. There is not enough ASL exposure at school because all day she is immersed in a spoken language environment. (Interview Family #5)

My oldest son is at least one year ahead in his spoken language skills. My second son struggled in the beginning and was always on his age level in his abilities; he is finally now ahead his level.

My first son is clear in ASL but I'm not sure if he is at par with his peers. (thinking) It is my personal opinion, I think he is slightly delayed but when he signs it looks clear. However, my second son does not sign clearly even though by the time he was 11 months old, he had picked up a lot of signs. But later, when he shifted to spoken language, he dropped the signs he had learned. (Interview Family #6)

My oldest is at par in his ASL skills. He is delayed in his spoken language skills because he received his CI later. When he received his CI he was three years behind his peers. He is slowly catching up. He will never be at par with his peers. He is slightly behind his peers in spoken language.

Also, he tends to speak following ASL grammar. It is because he signs in ASL. He also writes in ASL grammar, too. The school is working on supporting him to write in appropriate English grammar.

When she was one year old, she was not signing. She stayed quiet. She began expressing language much later. It went the same with her spoken language and reading skills. She is within her age range in language development in ASL and English. My daughter is learning how to speak simple phrases like, "I want.." It is nice to be able to speak some phrases like, "Where's the bathroom," or something like that. She agreed to that. She enjoys listening to sounds in her environment. She said the hardest thing is to speak. She feels signing is much easier. My son agreed talking is hard because it is a challenge to learn how to pronounce sounds correctly.

My third child is a bit ahead of his level in his spoken language development. I think it is because he started to learn spoken language at 1 year old at his daycare. I don't know. You know speech therapists tend to say it's perfect when it's not. I often question if they were telling the truth, you know? Anyway, my niece and nephew came to visit us and they said my third son sounded very clear. So, I believed them. He can pronounce words perfectly. I still question if he is at par with his hearing peers



because I notice his hearing peers will speak more than he does. It does not matter to me. His signing is sloppy. He signs fast too. My oldest signed clearly in ASL because he focused only on ASL at that time. As for my third child, he is using both languages simultaneously so he is not clear in ASL.

Both languages parallel each other in many ways. I always think it is based on a child's learning style. It depends on their learning style. For example, if one struggles with learning ASL, that would impact their ability to learn how to read and write in English, too. One may have the same issues in all languages. Some can learn languages quickly, like having the ability to acquire ASL and spoken English quickly. I believe it depends on their learning styles. From what I've seen with my children, it goes down to how their brains process information and on their skills in acquiring language. (Interview Family #8)

The above comments demonstrate how different factors affect individual's language development in English and ASL, including an individual's learning style and language use at home and school.

**Educational choices.** Children's experiences in school and daycare may also have an impact on their bilingual development. More than half of the children in the

study are mainstreamed and use spoken English only in their classrooms. Survey data show fifteen out of twenty-four children (63%) in the study use spoken English only in their educational placement, five children (21%) use bilingual approaches in ASL and English, two children (8%) use sign and spoken English simultaneously, one child (4%) uses ASL only, and one child (4%) uses cued speech at their school or daycare.

Table 6

*Language Use in Educational Placements (N=24)*

<i>Type</i>	<i>Numbers of Children</i>
School/daycare uses spoken English only.	15 (62.5%)
School/daycare uses Cued Speech	1 (4.2%)
School/daycare uses English and sign language simultaneously.	2 (8.3%)
School/daycare uses ASL/English bilingually	5 (20.8%)
School/daycare uses ASL only.	1 (4.2%)

A majority of the families have not stayed with one communication approach in their children's educational experiences, but instead, throughout their education, their children have experienced educational placements which use a variety of communication approaches. Several factors guide families to make changes in educational placements, such as to better match the child's needs, to attend a facility with higher quality programs and services, and to provide greater access to peers who share similar language

experiences. Several children started at a program which practiced a bilingual approach, or Total Communication approach, and then were fully transitioned into mainstream settings. Alternatively, children started in a mainstream setting and were fully transitioned to a residential school which used ASL or to other programs with supports such as sign language interpreting, itinerant teachers, or weekly speech therapy services. Families expressed that their decisions were often dependent on their children's progress with their language development in ASL and spoken English. Families shared details of their journeys to make choices in their children's education.

I fought with the school district. I told them I wanted to place her in a total auditory-verbal program. That specializes in auditory-verbal skills and development. They said they have a cued speech program and that it would be appropriate for her. I replied, No. It is because it involves a visual aspect and it would be distracting. We debated on it for almost a year and half. Then, they finally approved it and told us to go ahead. So the current program is best for our current situation for us. I think it is the best oral and auditory program and I trust them as they already have undergone an intensive training in that curriculum. (Interview Family #1)

I don't know what an ideal environment would be like. It depends on what she needs. We doubt we will continue with an oral environment in the future. Really in the beginning we wanted a lot of aural input while she is

young and using a CI. She already has alternative input at home so (aural input) was added in the beginning. We know things will probably change in the future. I envision that she will still receive auditory input with the support of ASL signs plus with reading and written English. It will be a mixture of all. Whether she goes to a Deaf school or is mainstreamed, she will still use a mixture of ASL signs and auditory usage. (Interview Family #2)

He is a smart kid but attending a local school in a mainstreamed environment didn't work for him. As for myself, I was able to succeed in a mainstreamed environment. I loved everybody, my interpreters, my classes but it didn't work for my son. You have to accept that. Do what is best for him. He started going to a residential school for the deaf about 5 years ago and picked up ASL there and is skilled with ASL now. (Interview Family #3)

My stepson is fully mainstreamed now. He tried attending his local school, but he was the only deaf child in his school. It was a struggle. He struggled in 4th grade. His grades declined. I encouraged my husband to place him in a public school with a deaf/hard of hearing program. They had a large number of deaf students. They had about 400 deaf students in the school district. However, all of the students had different IEPs

(Individualized Educational Plan). Some are fully mainstreamed and some attend mainstream classes part time and are in self-contained classes part time as well. We visited the school. My stepson went to the new school and he was fully mainstreamed with other deaf students who have interpreters, note takers, and FM systems as well. The hearing students in his class are used to Deaf Culture. They won't react and ask why deaf students are different and so forth. Hearing students in my stepson's class are educated and open minded to having deaf students in their class. My stepson is now a straight-A student and he is much happier now. He socializes well with his peers. He is doing very well. He has gotten so much better. I was impressed. (Interview Family #5)

My eldest son attended two days a week at (a deaf school) during his first two years. After he received his CI, he was transferred to another school. The (school for the deaf) did not provide enough access to spoken language. The (school for the deaf) had a good signing environment but for children with CI to succeed, they must have access to auditory input. At home, we do not really provide enough auditory input and there was none at the school. At that time, my son was not picking up (spoken language) fast enough. So, we decided to pull him out of the deaf school and enroll him at two different schools, at (oral school) for three mornings a week and at (another school for the deaf) for two mornings a week. The

school for the deaf provided access to spoken language. Since (the deaf school) provided access to spoken language, I was content with it. My son attended both schools for one year, but I was still not satisfied with my son's progress. He was not making progress fast enough. I've had contacts with several hearing families who have children with CI and I would ask them what their children could do (in spoken language). I learned they could do a lot more than what my son could do even though they both go to the same school. I wondered about that. Because of that, I decided to send my son, when he turned 3 years old, to an oral school for hard of hearing kids in the mornings. He was the only child with cochlear implants in his class. Most of the children were hard of hearing with hearing aids. It was called the deaf/hard of hearing program that used spoken language only. There was another class in the school that used signs for deaf kids. He attended the hard of hearing class every morning, and in the afternoons he interacted with hearing children at a private school in my neighborhood. From when he started attending both schools, I've seen a big difference. He certainly started to pick up listening and speaking skills. (Interview Family #7)

As shown, families shifted their educational choices over time to match their child's perceived needs.

**How families support bilingualism at home.** As indicated in the study, many of the families have positive perspectives towards both languages and seek ways to support their children's language development in both languages. The families in the interviews shared different ways in which they reinforce their children's ASL and English skills at home. Several families incorporate technology in their homes to support children's language development in ASL and English, such as You-Tube videos, iPads, computers, and DVDs.

*Supporting children's ASL skills.* As mentioned earlier, families began exposing their children to ASL at birth and communicated with them in ASL on a daily basis, teaching signs to identify objects around the house, and reading books to them through ASL. Families shared in detail how they supported their children's ASL skills at home:

We just communicate with each other through ASL. We read stories and I signed to her. We also watch videos on You-Tube such as 'Signing Time' and other ASL stories on video. We also take her to ASL events. We interact with other deaf people and my daughter sees them signing. At home, we use ASL most of the time. (Interview Family #1)

Like showing signs and words for objects around the house (labeling). For example, when I pointed to a tree, I would sign and say the word, "TREE" at the same time, using a Total Communication approach. (Interview Family #4)

I tend to ask my sons what they are doing now and I make comments on what they are doing. We do a lot of conversing, taking turns to talk. I will read books to them in ASL I do talk with the oldest a lot when he gets back home from school. I will sit down on the floor with him and talk with him asking him about his day. After that, he'll play and I would ask him questions about what he is doing, like "Why are you doing that way? What is this for?" I am working to help him express more. (Interview Family #7)

I signed, "MOMMY" index-self "MOMMY" (repeatedly) WINDOW, GIRAFFE, BOOK, pointing to open-book indexing, DADDY (exaggerated). In the baby's room, I have ARK themed stickers with animals: giraffe, lions, etc. We go over them frequently (I point them out). I test them by asking "WHERE'S THE LION?" sometimes they respond, depending at age 8 months or 9 months thereabout. (Interview Family #6)

Families also encouraged their children to enhance their ASL skills by playing with language and by exploring its features through incorporating ASL classifiers and facial expressions. Families described how they encouraged their children to strengthen their ASL skills:



I showed appropriate facial expressions like being mad (shows mad facial expression while signing MAD) and also to match the classifiers to describe the objects (pursed lips while using CL-C to sign a tube and to describe the hollowness of the tube). They replicated my signs and facial expressions. They are good at that. Grab that opportunity. (Interview Family #7)

We use classifiers at home. For example, at one time my daughter asked if daddy had left home. I signed to her, “YES, DADDY CAR LEFT, ZOOM (using 3-CL to show car driving then signing zooming off). She has been copying what other people sign. Now, she is beginning to do it by herself. For example, she saw the wipers going on our car, then she pointed to the wipers and signed, “WATER-SPRINKLING, SWISH-SWISH (using double 1-CL swishing)” I didn’t help her, she did it by herself. I replied, “YES-YOU’RE RIGHT- SWISH-SWISH (using double 1-CL swishing)”. For example, we talked about glasses. She used both hands to show she is moving her glasses from her face onto her head (GLASSES FROM EYES TO HEAD using double C-CL classifier). She practiced signing it herself. We watched a movie and she would describe the characters in the movie in ASL. Like in Tinkerbell, she used classifiers to describe the characters and makes a name sign based on classifiers. She makes up things based on

the character in the film using classifiers. We play that kind of game.

(Interview Family #1)

A few times she signed incorrectly related to the words that sound similar. Sometimes I helped her to modify her signs. (Interview Family #5)

For that age, my oldest who is 5 years old is becoming more creative during storytelling. She has started to ask me “What is that sign? What does it mean?” Often she will produce a sign that is close to the original sign and we will correct or modify her sign/classifiers. For example, for a tree 5-CL she might use 1-CL or whatever, you know what I mean. She is now learning each word has a specific sign in ASL. (Interview Family #2)

During storytelling... from the Shared Reading Project on videotape. I was one of the tutors in the past. About last year when I showed her the video, she didn’t understand it. I tried to explain it to her. As the signing used in the video is more ASL. Now she is starting to understand more of the action signs and classifiers. I encourage her. (Interview Family #2)

Several of the families recognize their role as the sole language models for ASL with their children since their children were only exposed to spoken language at their school or daycare. The only opportunities for learning and using ASL were at home for

some children. The families share their feelings of responsibility and duty to educate their children and perpetuate the use of ASL in their homes:

I hold most of the responsibility to provide them with one language  
(ASL). (Interview Family #7)

Mother: Because they go to oral school and daycare, spoken language is  
being used so where is sign being used? So at home, we are exposing and  
using ASL with them. When we go out to meet friends, we also use ASL.

Father: (Nodding) they are deaf too and we are good ASL models to them.  
(Interview Family #2)

***Supporting children's spoken English skills.*** Deaf parents use various ways to promote their children's spoken English development at home. Several parents, themselves, can speak English fluently and provide direct language support for their children by communicating with them through spoken English. Several parents who do not have similar skills rely on other sources to support their children's spoken language development at home. Some of the examples of how families support children's auditory and verbal skills in English include hiring a hearing babysitter, having a hearing family member live with the family in the house, using technology, providing their children with speech therapy services at home or school on a regular basis, obtaining early intervention services (home visits), and placing their children in auditory-verbal programs or in full

immersion in spoken language daycare or school. Families described how they worked with their children to increase auditory skills through auditory stimulation activities:

We watched videos on YouTube to listen to music for auditory stimulation so she can practice hearing. She has a teacher that visits us at home to work on her IFSP goals. She comes and visits us. She would show my daughter where the sounds are in our home like the sound of a dishwasher, a toilet flushing, or the sound of water dripping so she notices sounds in her environment. I do that too. I can point out sounds that are obvious to me like a person walking by or a car passing by. I'll ask her if she heard that, or a car horn or doorbell. Lights also flash too, oh well. I will ask her, so we do that at the same time so I also encourage her to connect sounds to flashing lights so she becomes familiar with the sounds around her. She see lights flash on the microwave and hears the beeps at the same time. I don't talk a lot but I do help with sound recognition. (Interview Family #1)

I can speak several words but keep in mind I can't string a bunch of words together like I might sign in ASL. I would move my mouth and sign to her. For example, when I sign or fingerspell the word, DOG, I would move my mouth to say dog at the same time and she might lipread and copy me. I can lipread well myself but I refuse to use my voice. My voice

is not clear. If I know how to pronounce a simple word correctly, I will pronounce it. I also use videophone to talk with my family. They will speak with my daughter. (Interview Family #1)

When my son and I first got our implants, we practiced listening with my daughter. It was fun. My daughter talked with us and we listened to her at the same time and saw which one of us did better. (Interview Family #3)

A family who uses ASL only in their home is able to supplement spoken language exposure through using technology with an iPad:

When my oldest was young, it was tough to provide support for his spoken language development because there was not enough technology to do that. I was frustrated. Now, to be honest, iPad is amazing! (Gets iPad- shows interviewer the iPad). iPad1 is sturdier than iPad2. iPad2 is a bit flimsy. I'm a bit amateurish with the iPad. My son is an expert with it. He is better than me with using the iPad. There is a program that shows a picture book and if you click on the words, it will send sounds of the words. Also when you click on the picture of the book, it will become animated and make funny sounds. (Interview Family #8)

A mother was able to reinforce her sons' spoken language skills at home by utilizing strategies she learned from an oral program:

During that time, he received services once a week from an oral program to work on his speech auditory skills at home. They taught me how to work on my son's speech and auditory skills at home. They gave me a lot of projects to work with my children like to speak closely to their ears, to make animal sounds like "oinking" and other many things. No exact science how to do it, just a lot of conversations, gesturing, and pointing with as much encouragement as possible. (Interview Family #4)

One of the families had a family member staying with them to take care of their kids and to provide spoken language support:

She (hearing grandmother) really had a big role (in providing spoken language exposure) especially during story telling time, when they returned home from school, talking with her and signing to their Daddy. Imagine they talked all day and when they get home, continue talking (because of hearing grandmother) and being stimulated a lot with spoken language. They have gotten used to using spoken language a lot and now she has moved out. As for the third (child), no hearing person will be living with us (to expose her to spoken language). We will have to figure

this out. Deaf families usually don't have hearing people living with them to speak to the children. We will figure this out. [At least] daycare will help a lot. (Interview Family #6)

A mother hired a hearing babysitter and a hearing neighbor to take care of her son and, at the same time, provide opportunities for her son to interact with hearing adults to better develop spoken language skills:

A babysitter came in for few hours to talk, sing, play, and read to him. It was ok. The lady was quiet herself. It was not enough, but it worked out well for us. After a while, I decided to have my neighbor take care of my son. She lives nearby and we could easily walk over. She took care of my son all morning from 8:30am to 12:30pm. I also signed up my son to take classes at the community center. My neighbor took my son to baby gym, music, and art classes along with her younger daughter. They went together to different places. They were very active and were kept busy. They also met up with other neighbors at the playground. Also on Thursdays and Fridays my husband tends to speak with our kids most of the time. Both will know when to sign him such as getting his attention because they know he can't hear that well. (Interview Family #7)

*Supporting children's literacy skills.* Families incorporate literacy practices at home to support their children's reading and writing skills in English. One of the most common literacy practices performed by the families was reading books to their children; however, the ways in which this was done varied. Several used ASL only, spoken English only, or a combination of both. Families shared how they encouraged literacy at home:

In terms of reading and writing, I do read with her all the time. Lots of books are accessible to her at home. I also take her to the library and...I usually sign stories to her and help her to incorporate the concepts of the story in general. (Interview Family #1)

Reading is important and my son loves to read. Really, it is important for child development. I've read books to my kids through signing. We have a lot of books. They enjoyed reading. (Interview Family #3)

She is reading on her own now. We did that when she was younger but now she reads on her own. Sometimes when I was reading to her I would come upon a word that we didn't have signs for so I would use creative signs to make it clear. Sometimes I would use ASL and other times I would talk to her - saying every word depending on the book itself. The school for the deaf taught me how to tell stories in ASL to my daughter.



(Interview Family #5)

Families encouraged their children to develop writing skills at home. Families supported their children by helping them distinguish between ASL and English grammar and how to write in English appropriately. Families described how they supported their children's writing skills in English:

For teaching her new words, I tend to write down the words. She has already begun to write for herself. I gave her a notebook and encouraged her to write for herself while I write for myself. That's something she's has been practicing at her school. For example, working on writing alphabetic letters. It is already part of the curriculum at her school. I feel she is making appropriate progress in developing her reading and writing skills as well as her spoken English skills. I've noticed when she talks, she incorporates English features for example "to be" verbs. She strings more words together in appropriate English grammar. (Interview Family #1)

Father: They are reading books and also writing. Sometimes they will find a paper and try to write words. Mother: In order to help support their writing, when they tell a story, they want me to write it. For example she would say "(child's name) that my bear." And when I write it, I would

explain that she would need to add “is.” Father: They understand as they go along picking up language. (Interview Family #2)

My stepson’s writing looks more like ASL. It seemed he copied directly from visual language into his writing. It looks like “broken English.” I reminded him to remember to add “the,” “-ing,” and other words used in English in his writing. He is getting better but he still has a lot of problems with reading and writing, anyway. (Interview Family #4)

Well, he can read using phonics-based strategies. He can try to sound out the words in print to help them understand what was written. Spoken language already provides the structure of a language and its grammar. It can be easily transferred to English print. Both share the same principles of grammar and structure. So, sometimes I noticed my son did not write in proper grammar in English and that means he may not speak in appropriate grammar, either. I can support him to write in an appropriate way, which could support his spoken language development. That’s nice. (Interview Family #7)

***Bilingual practices at home.*** Families also use bilingual practices at home by making connections between ASL and English. They frequently go back and forth between both languages to enhance understanding. Parents shared how they use both

languages to support their children on daily basis:

I believe both languages (signed and spoken) help them develop literacy skills. My son will spell some words and start to write. My youngest son “scribbles”. He made connections between signed and spoken words with printed words. My oldest came up to me and asked me how to spell a word. I used ASL to spell out the words and then he’ll try to write down the words. I signed in ASL to translate what was written in print.

(Interview Family #7)

At home, sometimes when they are watching television and miss something on TV, I sign the words they missed. Same thing when they were watching videos, they were listening to sounds, and on the computer, as well. They asked what the signs were for words they heard. So they are getting support when they hear words. Sometimes they ask for the sign for that word. (Interview Family #2)

For example, while reading books, we’ll go back and forth between signing in English order or in ASL. We would sign the story in ASL based on concepts shared in the book as well as on the pictures. (not word by word). But lately she is noticing particular English words in text. Sometimes she will attempt to read a phrase in English by signing word

for word, then we will translate the phrase in ASL to help her understand or vice versa (sign the story then read it in English). It helps her to understand English better. Without ASL, it might be more of a struggle to understand English. (Interview Family #2)

Several times, he said words when he did not know the signs for the words. He tried to speak clearly and I tried to lip read him to figure out what he was trying to say. I asked him for clues, like what letter does the word start with? He practiced that a lot at school. The teacher gave the students a literacy bag with three clues in it and the students had to guess what word it was. I do the same with him and I ask him for clues. For example, he'll respond, "it's brown.." and give other clues. Then, I was able to figure out what he is trying to say. I would then model the appropriate sign and spell out the word. (Interview Family #7)

We do incorporate both at home. For example, we use academic ASL to help with our children's homework. When my oldest was mainstreamed, we provided ASL support for what he learned in English to make the connections between both languages. I think ASL is important to support academic skills. We rarely (never) use spoken language here at home. We use ASL for everything such as for social and academic purposes. My husband believes we must have ASL for social purposes. It makes

communication more smooth and effective. Academic (ASL) is also used to support reading and writing skills in English. (Interview Family #8)

**Families' challenges in maintaining bilingualism with their children.**

Maintaining bilingualism is difficult for many of the families. They shared some challenges they have experienced while supporting their children's bilingual development in ASL and English. Challenges expressed by the families include ensuring that they are providing enough balance of support for both languages, finding the right educational placement for their child, and finding enough peers for language models in both languages. Families also expressed some challenges in dealing with the tensions between the deaf and hearing communities about cochlear implantation.

*Maintaining a balance between both languages.* The most common challenge the families have is ensuring that their children have a balance of exposure to both languages. Families shared their challenges this way:

I often wonder if I'm exposing my child to enough ASL and English or too much of one and not enough of the other? I sometimes feel a little anxious but I have to try to think positively. Our priority now is ASL at home and English at school. We'll just keep it like that. It can be hard. At home, we try to apply some spoken English words that she learned from school.

(Interview Family #1)

When we worked hard on getting him exposed to English and after a while, it seemed he has dropped some signs he learned. Now when he signs, he is not clear. He would talk (to us) and we'd ask him to be clear, to use signs. (Interview Family #6)

Other challenges families experienced included providing sufficient spoken language exposure at home. Parents have some difficulties monitoring and supporting their children's progress with spoken language development due to parents' own deafness. Families described their challenges this way:

I think it is a challenge for deaf parents to have children who have cochlear implants. It is because I can't provide some things. It's like with hearing parents who can't sign or have a hard time learning how to sign. Sometimes it is a challenge to know what they are saying. I have to depend on other resources to know how they are doing with their spoken language development. I could make it simple by sharing the same language with my children, but I want them to have both. You know? It is a challenge and it is tough. (Interview Family #8)

The children's paternal grandparents, aunts, uncle, and cousins are all Deaf, and use the ASL-only method. Also, 95% of our friends are Deaf and primarily use ASL. This means that our children are often in ASL-

rich environments when they are not in school. While I think this is great for their ASL development, sometimes I wonder if they are missing out on spoken English 'time'. (Survey Family #7)

Spoken language development- being a Deaf family (4 of us) at home using primarily ASL, our daughters don't as quickly learn the spoken language that their peers with hearing parents do. Also, learning two languages (ASL and spoken English) can be challenging sometimes, where the child is not sure of which modality or how to improvise during communication. (Survey Family #5)

Several families came up with solutions to address their challenges. They made decisions about how both languages would be used at home and found other ways to support children's spoken language skills outside of their homes. Families described their challenges and how they resolved them:

I worry sometimes that our daughter is not getting the full advantage of her CI at home because it's much quieter than at school and in the community. Sometimes her ASL skyrocketed, her speaking is plateaued. Sometimes her speaking skyrocketed, and ASL is plateaued. It goes back and forth! Having a CI at a young age is important, so receptive and expressive spoken English can be a challenge at home because we

primarily use ASL but we have summer school, hearing friends/family, additional speech/language services, to support development of listening and speaking with the CI. (Survey Family #4)

I'm deaf myself; it is really challenging to "hear" his speech in an appropriate way, since I'm the primary caregiver and advocate for him. It is challenging to sign ASL and use spoken English at the same time. So my husband and I take turns in conversations with "modeling" for him to understand both ways of communication. (Survey Family #6)

Being deaf myself has meant that I do not hear as well as hearing parents do. My mother was one of my greatest teachers in that she spent many hours a day pointing to things that made noise and telling me what they were, reading to me, correcting my speech, etc. I do the best I can with what I CAN hear, but I'm afraid that there are many times where I miss opportunities to correct or reinforce my children's spoken language skills since I might think they are saying the word/sound correctly when they really aren't. I also miss opportunities to point out sounds because I didn't hear them, myself. However, I also believe that it is because of this "disadvantage" on our part, we were able to secure funding through our school district for full-time placement in a private auditory-oral school for both of our children beginning at 21 months of age. Prior to that, we



utilized private speech therapy services in addition to speech therapy and DHH services through our school district's Early Intervention program. Another challenge would be that the children's' father does not speak or hear at all, so he is unable to aid in their spoken language development. However, on the flip side, he has been instrumental in establishing and continuing their ASL development. (Survey Family #7)

I don't know if the ASL aspect influenced his writing or it just might be because he is a boy. Boys in general, do have a hard time keeping up. (Thinking) Challenges...sometimes. I'm embarrassed to say, but sometimes the boys brought me homework that I do not understand because it looked complicated. I asked myself how could I explain the assignment to them? We'd correct him and show him the right way to write. It is a challenge not to make him confused with how to write in English appropriately. (Interview Family #4)

Families have unique challenges and strengths when supporting their children's bilingual development in ASL and English. They acknowledged some of the limitations they have experienced in maintaining bilingualism with their children and sought other ways to compensate for their challenges. This demonstrated how families have high expectations for their children to become competent language users in ASL and English.

***Educational placement.*** Another challenge often expressed by the families was finding the right educational placement for their children. Families said they often were not satisfied with the programs that are available to their children. They are frustrated because they feel they must either choose between programs that use ASL only or programs that use English only. There are not enough programs which utilize strong bilingual practices in both languages. While there are some programs that practice bilingual education, for some families, they felt there was not enough exposure to either language. Families expressed this sentiment in this way:

Choosing the best education for my daughter. There is no one true program that provides the best of both ASL and spoken English in an academic setting, so that has proved to be difficult in choosing between different options. (Survey Family #15)

Since she has been mainstreamed full time in a spoken language environment, her ASL has not been as strong. I try to encourage her to keep up with ASL. I wish she could receive that benefit at schools. At (a residential school), they don't provide enough spoken language so I am stuck. It is a challenge. I wish she could use ASL at her school too. (Interview Family #5)

The biggest challenge was finding a school or a daycare. It was either fully ASL or fully spoken language. So which is it? There is no meeting

halfway to meet my needs. None at all. So the challenge for now and in the future will be schooling. Which school is right for them? Is that school good for them? Is that (other) school good for them? Is that (another) school good for them? Mainstreamed? (Shrugs shoulders.) (Interview Family #6)

I think the challenge is finding an educational environment for him and to try to find other students educationally equal to him in appropriate classes. (Deaf school) is really impressive because they have honors classes and, are able to offer those classes because there are more smart kids there. (Other deaf school) cannot really offer those classes because there are not enough smart students there. For my hearing daughter, it is easy, school and home, that's it. It is so much easier. I wish there were more options available and that he didn't have to be so far away. I wish there were more options available near home. But I know it is because - how many deaf kids live here? Not many. While hearing kids, there are many. They are able to offer more for hearing kids than for deaf kids. You have to decide what to do; staying home, and experience frustrations by having a small deaf group or go far from home where there are more deaf children? He is far from home, you know. Don't see him much. My family is important too. What about family? (Interview Family #3)

***Lack of competent peers in educational placements.*** Families also discussed the challenge of finding an educational placement with sufficient peers who are strong language models in ASL and English. Several families' feel interacting with peers is essential for their child's social and academic growth. Families shared their frustrations with the lack of peers for social and academic opportunities:

Her peers at (deaf school) mostly use ASL and little or no spoken English is used. I believe being around role models is important - not only teachers but peers. There is a need for a balance but at (deaf school) there isn't a balance. Only a very few kids use spoken language at (deaf school) and some of them are (language) delayed. I believe she needs to be around strong language models who can talk well. There were not enough spoken language models at (deaf school); almost all of her peers are ASL signers. So I'm stuck. That's why I put her in a mainstreamed program at her present school for now. My daughter has been happy there so far.

(Interview Family #5)

As for friends, there aren't enough children with CI for them. My son is 5 years old, how many CI children out there that who are 5? None. As for 4 years old, there are none. My son is 3 and I don't know of any other CI child in my county that is 3. As of today, I know of no one child that is 3 with CI. Deaf schools, none. (Interview Family #6)

What is missing from home are peers. Schools provide peers. I think that's the key for learning. They interact with each other and learn from each other by maintaining discussions. It is possible when they share similar levels of language abilities. They'll pull each other to higher levels. With teachers, it tends to be more authoritative and children would listen to them. With peers, they interact more and express more with each other. The schools do provide that opportunity for peers to interact and converse with each other. It is possible if the school provide the right environment for that. If the class were more teacher-directed then there would be less opportunity for interactions between students. That's one thing I am most concerned with. (Interview Family #7)

***Ideal educational placements.*** Families described their ideal educational placements for their children in the survey and in the interview. Their ideal placements varied, ranging from being in an ASL-dominant environment to bilingual settings to an English-dominant environment. From those supporting an ASL-dominant environment:

Ideal placement would be at a school for the deaf with his intellectual peers, with small sized classes that are challenging. (Survey Family #3)

I'm not going to go into what he'll need as a deafblind child so I will focus on the language choice. We feel an ASL-dominant environment with opportunities for meaningful spoken language (1 on 1 speech class) that'd cover common situations we'd benefit from knowing what the hearing person is saying. It's also important for us to be flexible as parents to support our child since maybe he/she could excel with listening and/or speech, that's fine, but if not, focus on the language that is successful (ASL) then so be it, focus on that. No 'swimming against the current' in language development. (Survey Family #17)

From those supporting an English-dominant environment:

He uses a cued speech translator and does have the option of using a sign language interpreter. School setting is in mainstream environment. (Survey Family #16)

My child is in the ideal education setting at the moment. He is fully mainstreamed 5 mornings a week. However, he has gym, music, art and lunch with his deaf peers. I think it's important he has a close relationship with his hearing and deaf peers. Though he is mainstreamed his classmates are used to seeing other deaf children with CIs, BTEs, interpreters, etc. (Survey Family #9)

I hope he will be mainstreamed in my neighborhood school same as my oldest. I expect him to follow through all grades and get the highest education level as he can. For the first few years, I hope he will get a classroom assistant, just to make sure he follows through and doesn't miss out on anything and once he is able to do so without "assistant". I will have to make sure he get support he needs if any, speech, tutor, and exposure to deaf community as well. To ensure he get the best of both worlds. (Survey Family #6)

An oral school for the deaf with experience with deaf children of deaf parents. (Survey Family #11)

Ideally, I would like for my children to be able to function and learn as independently as possible in a mainstream public or private school while utilizing their CI to the max of their ability. (Survey Family #7)

The questions most common response to this question was to provide settings that have exposure to both languages in ASL and English. Families offered an image of ideal bilingual practices in educational settings:

Core classes such as math, science, social studies to be offered in spoken English and enrichment classes (PE, Arts) offered in ASL and each class has two teachers (deaf and hearing) who use ASL and spoken English. (Survey Family #1)

Attend some classes with hearing peers and teachers for keeping up with spoken English and Deaf peers and teachers for keeping up with ASL. (Survey Family #2)

Ideally, I would love to see a school where there are equal numbers of hearing and deaf children, who are able to learn alongside each other. There would be teachers and school professionals who are trained in bilingualism and can apply bilingual standards in their teaching methods. Having the choice to use spoken English and ASL is an invaluable asset, and for a school to provide this asset would be a perfect scenario. (Survey Family #15)

Families desire to have programs and schools offer strong models of both languages. Several parents preferred for their child to be enrolled in programs that are English-dominant as they felt providing ASL at home sufficed.

*The tensions between the Deaf and the hearing communities about cochlear implants.* Other challenges they experienced involve dealing with the tensions between



deaf and hearing communities when it comes to cochlear implantation and maintaining the values of developing strong language skills in ASL and English. Families expressed their challenges in both communities:

I think deaf people have fears of losing their deaf culture and ASL. I understand their perspectives. I understand. Then again, really, will it? It hasn't happened yet. You don't know if it will happen or not. We should be thinking about how we can make a positive experience out of this. What should we do? I don't see that. (Interview Family #1)

Cultural conflicts - being part of deaf community who turn against us for making this decision, and dealing with hearing community who do not understand deaf culture, ASL, etc. Dealing with hearing people who are afraid of ASL and deaf culture. (Survey Family #4)

When my son was young, at a family gathering, my son and I were talking to each other, I had my voice off and was signing to him. My mother said "Don't stop talking. You should talk too." Also like some deaf people asked me why did your son get an implant? You cannot make everybody happy! (Interview Family #3)

I guess I know some people in the deaf community are very sensitive about the idea of excluding and devaluing ASL. They feel both languages

should be equal or they feel ASL is very important. I understand. I think I am a realist. I told myself, Ok, yes I want both languages but if I have to, I would weigh the options. I would choose which provides more opportunities. I would not allow other members in the deaf community to make the decisions. Focus on the individual and evaluate on how they are progressing and make necessary decisions. I would seek for the best possible environment and see how that pans out. (Interview Family #7)

The hearing community needs to be more open about ASL, too. They need to understand how ASL can really support spoken language development. (Interview Family #1)

Mother: Use more signs with their deaf child. I see hearing community... hearing parents with deaf child with CI use no signs. At one conference, one parent looked at our family where we were talking and signing to our child. They realize they want to sign to their child more but they said their child prefers to use speech. But sometimes when they are not using their CI, it can get frustrating (for them not to understand their parents). For examples at a swimming pool I can sign to her and she understands me but for them it can be hard to understand what they said. Father: So right. Hope the hearing community sees what is needed get involved. They don't need just speaking, perhaps signing will be an asset. They don't see that

yet. Need to broaden their outlook on communication strategies. This is true for audiologists and those in hospitals not to push only for CI only but to look at all other options. (Interview Family #2)

Families wish for some members of the Deaf community to respect a family's choice to provide cochlear implants for their children. They also want the hearing community to encourage including ASL for all children with cochlear implants.

**Summary.** Question 4 addressed families' experiences and challenges in supporting their children's language development in ASL and English. Families' language use varied from being ASL-dominant to English-dominant. However, a majority of the families supported their children in developing skills in both languages and wished for their children to continue to be bilingual. Families shared several challenges they experienced when supporting bilingualism for their children, ensuring they maintain a balance of exposure to both languages, and finding the right educational placement for their children.

### **Summary of Findings**

Chapter 4 examined the data that were collected from the seventeen families who participated in the survey and the eight families who participated in the follow-up interviews. The data were presented in detail through discussions of the four research questions. The first question explored families' beliefs and perspectives towards ASL and English and on bilingualism for their children with cochlear implants. Overall, families had positive views towards ASL and English and highly value their children developing competency in both languages. Families also demonstrated some understanding and

strong beliefs about maintaining bilingualism with their children due to their own experiences as bilinguals. Question 2 examined families' perceived abilities on ASL and English. In general, families believe themselves to be fluent in both languages. It was investigated to see if there was a correlation between families' perceived language abilities with their belief statements, which led to the next research question. Question 3 tested if there was a correlation between families' perceived language abilities and their ratings on the belief statements. The correlation between families perceived language abilities in ASL and English and their opinions on valuing for their children to develop ASL skills were statistically significant. Question 4 focused on exploring families' experiences and challenges in supporting their children's bilingual development in ASL and English.

## 5: DISCUSSION

The goal of this study was to investigate families' beliefs and perspectives about ASL, English, and bilingualism for their children with cochlear implants and to learn about their experiences in supporting their children's language development. Multiple findings emerged from the data which were gathered through an initial survey and follow-up interviews. First, families described their perspectives and beliefs regarding English and ASL as a language. Second, families discussed their perceptions of bilingualism. Third, families shared their perceptions of their language abilities in ASL and English. Fourth, correlations between families' perceived language abilities and their opinions on belief statements related to ASL and English were investigated. Fifth, families described their language use at home and ways they supported their children's language development. Sixth, families discussed their experiences with their children's educational journeys and shared their ideal educational placements for their children. Lastly, families shared their frustrations and challenges as well as some solutions for their children to maintain bilingualism in ASL and English.

### **Summary of Research Findings**

**Parents' beliefs and perspectives on ASL and English.** Overall, families in the study exhibited positive perspectives and beliefs towards supporting their children to develop skills in ASL and English. However, parents' perceptions of both languages

differed. According to the survey results, the families placed slightly more value on English than on ASL. All of the families in the survey, except for one family, strongly agreed that they value for their children to develop spoken English skills; 100% of the families also strongly want their children to develop literacy skills in English. As for ASL, fourteen families strongly agreed, one family agreed, and two families had neutral opinions about valuing their children's development of ASL skills.

The follow-up interviews gave an explanation of their perceptions and beliefs on both languages; the results show that families frequently view English as a “survival language” and ASL as a “cultural language.” Families in the study feel learning English is crucial for their children's future and survival in an English-dominant environment. Learning to listen and speak in English is one of the reasons many families chose cochlear implantation for their children, a reason often given by hearing families (Watson, et al., 2006, 2008; Wheeler et al., 2009). Families' common goal for them is to become fluent in spoken English and to have the ability to participate in the hearing world without using interpreters. Several families have inappropriate expectations of cochlear implants and overlook the possible remaining limitations when trying to achieve fluency in spoken English (Christiansen & Leigh, 2004; Weisel et al., 2007; Zaidman-Zait & Most, 2005). There are many factors which may impact deaf children's spoken language development, regardless of whether or not they have cochlear implants. Families frequently were informed about the medical risks involved with cochlear implant surgery but infrequently about the potentially negative social, linguistic, and psychological effects (Christiansen & Leigh, 2002; Humphries et al., 2012; Hyde &

Punch, 2011). Thus, families can be misled to think cochlear implants are a simple solution to attain fluency in spoken language.

Several parents also felt their inability to hear and speak has prevented them from getting promoted within their careers and they do not want their deaf children to have the same experience. It is possible these parents perceive deafness as impairment and favor cochlear implants to compensate for their child's hearing loss. However, a majority of the families perceive cochlear implants as "enhancement devices" rather than "compensatory devices" (Andrews, Leigh, & Weiner, 2004, p. 25) which increase their children's repertoire of skills in communicating with others. Families value their children to have the ability to communicate with individuals in different ways.

On the other hand, families may feel the pressure to accommodate English-dominant societal expectations by encouraging communication through spoken language (Martínez-Roldán & Malavé, 2004; Pacini-Ketchabaw & de Almeida, 2006; Ro & Cheatham, 2009). ASL is frequently viewed from a language-as-a-problem perspective, the medical model perspective, and, therefore, ASL is not highly valued in our society.

A majority of the Deaf families in the study highly value ASL and perceived it as the language they feel most comfortable using. ASL was used as the primary language for many of the families' communications. Parents also discussed how they feel ASL is critical for their children's identity as a Deaf person and for increasing a sense of belonging towards the Deaf community. As literature shows, promoting the acceptance of one's cultural identity as a Deaf person leads to greater positive self-esteem (Bat-Chava, 1994; Grosjean, 2008). Deaf parents typically encourage their deaf children to develop

positive self-identity and pride in being Deaf and to perceive themselves as a cultural group rather than as being disabled. Parents also demonstrated mutual appreciation towards the art and nuances of ASL and shared that appreciation with their children. They expressed beliefs about ASL as a resource for social, cognitive, and linguistic gains. Parents discussed how they felt learning ASL was critical to developing a strong language foundation at an early age because it enabled them to transfer their language-learning experiences to English. However, some of the families had misconceptions about ASL as a “conceptual language”. All languages are conceptual. Because ASL is readily accessible, it can be misunderstood that ASL is the only language to understand complex concepts. It could also be due to limited knowledge about the structure of ASL. Frequently, Deaf people are not taught about ASL as a language in schools and focus more on learning the grammatical rules of English.

The findings about families’ beliefs and perceptions of ASL and English are similar to studies exploring bilingual families’ attitudes and beliefs about their children learning their home language and English. As literature shows, bilingual families also frequently highly value their children developing strong English skills because English is seen as a dominant language in our society (Pacini-Ketchabaw & Armstrong de Almedia, 2006; Ro & Cheatham, 2009; Wong-Fillmore, 2000). Wong Fillmore (2000) argues children in American who come from diverse backgrounds typically become English-dominant or use English only when they reach middle to late childhood. Because English is in high regard and, therefore, schools and society view English as a crucial language to



function in the world, bilingual families often feel pressure to support their children's competency in English.

Families in the study also expressed similar goals for their children's maintenance of ASL just as other bilingual families value the maintenance of their home language with their children. Both groups express similar goals when it comes to keeping their home language with their children, increasing self-identity, having better relationships within their families, fostering more effective communication skills with people who speak their native language, and increasing access to greater employment opportunities (Lao, 2004; Park & Sarkar, 2007; Yan, 2003).

**Families' beliefs and perceptions on bilingualism.** A majority of the parents in the study value their children's bilingualism in ASL and English. All of the parents in the study use both ASL and English, and, therefore, their personal early childhood experiences may be one of many factors which helped develop their own ideologies about supporting their children's bilingualism. Parents' prior experiences varied as some were raised using spoken language only, sign language only, or a combination of both languages in their homes and schools. Majority of the parents in the study were mainstreamed and experienced being exposed to spoken English and being around their hearing peers. Their perspectives towards being deaf also varied and may be another factor contributing to their current opinion. King and Fogle's (2006) study on family language policy demonstrates how parents' experiences strongly influence their decisions and choices for language use. In this study, families' beliefs and perspectives about both

languages were also evident through their practices and methods of supporting their children's language development.

It is interesting to note that many parents in this study were hesitant to self-identify as bilingual because they believed that to be a bilingual, one must be equally fluent in both languages. Grosjean (2008) and Baker (2006) define bilingualism as using two languages and one does not need to be equally fluent in both languages. Baker emphasizes the difference between ability and usability of both languages. Bilinguals also vary on how they often and in what ways they use both languages.

Families recognize the risks and benefits of maintaining bilingualism, but mostly discussed the advantages of bilingualism. A majority of the parents who participated in the study were highly educated and demonstrated some knowledge about the advantages of bilingualism, especially how sign language can reinforce spoken language development.

Theories on bilingualism suggest that strong proficiency in one language can supplement the development of another; for example, sign language can support spoken language development and vice versa (Cummins, 1979; Genesee, 2008). Most of the parents in the study believe sign language supports spoken language; however, some had mixed opinions about spoken language supporting sign language. It is suspected the parents were informed by research and other sources about the importance of including sign language to support spoken language in order to overcome the language-as-a-problem orientation but rarely on how English can also support ASL. Thus, further

investigation is needed to explore families' experiences and perspectives on the role of English in ASL development.

**Families' perceived language abilities.** Parents in the survey were asked to rate themselves and their spouses/partners on their language abilities in ASL and English from very poor to very fluent. A majority of the parents perceive their ASL and English skills to be fluent, however spoken English was mostly perceived to be poor for some parents. It is critical to discriminate between linguistic proficiency skills in English and speech skills. One may have excellent written English skills but poor or limited skills in spoken language. Research shows spoken English skills are not required for fluency in written English. It was indicated that proficiency in ASL could predict written English skills (Akamatsu & Armour, 1987; Hoffmeister, 2000; Mayberry et al., 2010; Padden & Ramsey, 2000; Prinz & Strong, 1998; Wilbur, 2000). Mayberry and her team (2010) identify that deaf individuals do not usually depend on spoken-language phonological coding to read. The purpose of analyzing families' perceived language abilities was to explore any correlations between their perceived language abilities and their opinions on the belief statements about their value for both languages.

**Correlations between parents' perceived language abilities and their opinions regarding belief statements.** Correlations between parents' perceived language abilities and their opinions on belief statements on ASL and English as well as on bilingualism were explored in this study. The results did not demonstrate a clear pattern between parents' perceived language abilities and their opinions on valuing for their child to develop certain language abilities, except for valuing children to develop ASL skills. The

correlations between families' perceived language abilities in ASL, spoken English and written English and their opinions about valuing for their children to develop ASL were statistically significant. In sum, those who perceived language skills in ASL and writing in English to be fluent were likely to strongly agree with valuing their children in developing fluency in ASL skills. Those who felt their language skills in ASL and written English were to be poor had some disagreements about valuing their children to develop ASL skills. There was a negative correlation between several parents' perceived spoken language abilities and their opinion on valuing for their children to develop ASL skills. It implies that the more the parent is fluent in spoken English, the less value they have for their children to develop ASL skills. Overall, parents' perceived language abilities and their opinions on language development in English were diverse. Further investigation of how Deaf families' language abilities impact their beliefs and perspectives on children's ASL and English language development should be explored.

However the interviews indicated that regardless if the parents in the study have poor or strong language skills, they still value maintaining bilingualism for their children. Parents, in general, typically have high expectations for their children and want their children to do more than what they as their parents have accomplished (Piller, 2005 as cited in King & Fogle, 2006). In their study, King and Fogle (2006) also suggest parents may view promoting bilingualism as a good parenting goal. For instance, in Lao's study (2004) investigating parents' attitude towards Chinese-English language use, English-dominant parents and Chinese-dominant parents' beliefs were compared and it was indicated that both groups valued bilingualism in both languages.

### **Families' language use and strategies in supporting children's languages.**

According to DeHouwer's framework (1999) on family language policy, families' beliefs and perspectives on languages are instrumental in making linguistic choices and practices for their children. In this study, families' beliefs and perspectives were indicative of their practices to support their children's language development in both languages. Most of the families used both ASL and English at home, either separately or simultaneously, while few used either English only or ASL only. Before children received their cochlear implants, most of the families communicated primarily through ASL. After implantation, a majority of the families continued to use ASL and began to include spoken language to promote their children's bilingual development.

The findings on language use with children before and after cochlear implantation were inconsistent with those of hearing families with children who have cochlear implants (Huttunen & Välimaa, 2010; Watson et al., 2006, 2008; Wheeler et al., 2009). Most of the hearing families in previous studies shifted their language use from signing to speaking exclusively. However, few families continued to use sign but focused more on including speech. The families in this study did not make a complete shift from signing to speaking but, instead, continued to sign and some added spoken language exposure. The families continued to include ASL for effective communication and to promote bilingualism. Families also felt maintaining one's home language is critical for children's self-identity as a Deaf person and for maintaining a sense of belonging to the Deaf community, which appears to not to be a common goal among hearing families with children who have cochlear implants. Most hearing families do not encourage their

children to continue using sign language as a way to stay connected to the Deaf community, but use sign language primarily to facilitate their spoken language development. However, it must be noted that there are several hearing families in the study who embrace bilingualism as well as the Deaf culture and encourage their children with cochlear implants to continue using sign language so they can continue participating in the Deaf community (Leigh & Rush, 2012).

In regard to children's educational experiences, more than half of the children (63%) were fully mainstreamed and only used spoken language. Several were enrolled in programs that use bilingual approaches, Total Communication, or cued speech. Families shared how they experienced journeys of changing language and educational choices before and after cochlear implantation – an experience many hearing families share. Decisions related to language usage depended on several factors such as ways to meet the child's needs, the quality of education and services available, and the availability of peers with good language models. The changes were made to both meet children's needs and to increase opportunities for facilitating their spoken language development (Huttunen & Välimaa, 2010; Watson et al., 2006, 2008).

The other difference between Deaf parents and hearing parents with children who have cochlear implants is the ability to provide a language-rich model of ASL for their children. Deaf parents play critical roles in providing their children with ASL skills as soon as they are born. For some parents, they are the sole means of exposing their children to ASL since children are mostly exposed to spoken language in their schools or daycare. Deaf families also play important role in facilitating English development,

mostly through literacy practices such as reading and writing in English. Deaf families instill positive views towards being Deaf and promote their children's development of a sense of pride in being Deaf and participation in the Deaf community.

A challenge frequently expressed by Deaf families is to provide sufficient support for and exposure to developing children's spoken English skills. Some families find it difficult to monitor their children's spoken language development and, instead, rely on other sources. Families sought other ways to support their children's spoken language such as using technology, hiring a hearing babysitter, having a hearing family member living with the family, or obtaining speech therapy services on a regular basis.

Even though, the families incorporated the use of both languages, ASL and English language, at home, the majority of the families had more of a focus on promoting spoken English development than on promoting ASL development for their children. Survey findings showed that families valued that their children develop skills in English slightly more than the development of ASL skills. They also expressed a sense of urgency to support their children's spoken language development for survival and success in the future. Most of the children in the study were placed in English-exclusive environments and families sought additional ways to support their children's spoken language development at home. Some families felt learning ASL at home sufficed. Some of these views are similar to those previously reported in studies involving families from language minority communities. For example, the emphasis placed by language minority families was on mastering English skills for their children, rather than on the development of high level proficiency in both the home language and English (Martínez-

Roldán & Malavé, 2004; Pacini-Ketchabaw & de Almeida, 2006; Ro & Cheatham, 2009).

Families also expressed their frustrations in finding the right educational placement for their children that would facilitate their development in both languages. Some families felt they had to choose programs that used either a spoken English-only environment or an ASL-only environment. Too few programs are available to families that utilize strong bilingual approaches in ASL and English. Families discussed their ideal educational placements which ranged from English-dominant to ASL-dominant. Several families also expressed their desire to have strong bilingual programs and shared different ideas as to how programs could incorporate bilingual approaches. Because English is a dominant language in our society, there are limited resources and recognition in promoting bilingualism. In addition, several parents in the study experienced discrimination in their workplaces and in the society like Audism and Ableism due to their deafness and did not want their children to endure same experiences that they had. Therefore, the push for children's spoken language to develop was evident with the families.

Families expressed their challenges in dealing with tensions within the Deaf and the hearing community about cochlear implantation. There are still concerns within the Deaf community about pediatric cochlear implantation and several families experienced criticism and disagreements from their peers within the Deaf community (Christiansen & Leigh, 2011; Paludneviene & Harris, 2011). Families expressed a desire for the Deaf



community to be respectful towards their decisions and for the correction of misconceptions commonly held about cochlear implantation.

Families also experienced some challenges within the hearing community when it came to being inclusive of sign language in their homes and selecting an appropriate learning environment for their child. From the medical model stance, ASL is frequently seen as a problem and is believed to impede spoken language development. There is no evidence indicating that sign language hinders long-term spoken language outcomes (Archbold et al, 2008; Marschark & Hauser, 2012; Marschark et al., 2006b). For instance, an audiologist recommended that Deaf parents in this study limit their signing to ten signs with their son and focus more on supporting their spoken language skills. Another family also experienced pressure not to use ASL with their children from educators. Families wish for the hearing community to be more supportive towards including ASL as well as bilingualism in deaf children's lives.

### **Implications and Recommendations for Families**

Families with children who have cochlear implants have unique and challenging experiences in supporting their children. It is recommended for families to first examine their own ideologies about language development and their perceptions towards deafness. Their ideologies may influence how they practice supporting their children's language development and making educational choices. Families' experiences also may be a critical factor in promoting children's language development. It can be advantageous yet a dilemma for some families, especially those who do not have experiences with or knowledge about deafness or bilingualism.

Deaf parents are knowledgeable about what it is like to be deaf from their own experiences being deaf and it is seen as strength to best facilitate their children's growth. It is more challenging for hearing parents because they typically do not know what is like to be deaf and may have difficulties fully comprehending their deaf child's unique needs. Hearing families with deaf children frequently will encourage their children to develop spoken language skills and include some form of sign use for their children with cochlear implants, but sign language is typically viewed as a temporary tool for learning English. Not many know the implications and advantages of full access to sign language (Archbold & O'Donoghue 2009; Archbold et al., 2006, 2008; Christiansen & Leigh, 2004; Geers, 2006; Moeller, 2006; Chute & Nevins, 2006; Berg et al., 2007; Geers et al., 2002; Hammes et al., 2002; Huttunen and Vällimaa, 2010; Spencer & Tomblin, 2006; Spencer & Bass-Ringdahl, 2004; Watson et al., 2006, 2008; Wheeler et al., 2009). Parents with deaf children who have cochlear implants, regardless if they are hearing or deaf, may benefit from learning about the advantages as well as the challenges of maintaining bilingualism in both signed and spoken languages and of being a part of the Deaf and hearing communities.

Families can benefit from learning specific strategies and practices to help support their children's bilingualism at home. Families should learn about the benefits of bilingualism and the value of having a deaf community and culture (Christiansen & Leigh, 2004; Hyde & Power, 2006; Hyde & Punch, 2011; Hyde et al., 2010; Kermit, 2010; Watson et al., 2008; Wheeler et al., 2007).

Family-to-family support and involvement is critical in the overall well-being of deaf children (Hintermair, 2004, 2006; Lederberg & Golbach, 2002; Luckner & Velaski, 2004). Frequently, families considering cochlear implantation for their children experience limited opportunities to reach other deaf parents with whom they could discuss their unique questions and issues. The experiences of these families may be very helpful to other families who are considering cochlear implants for their children (Hyde et al., 2010). In addition, hearing families and professionals can benefit from learning about the experiences of deaf adults in order to gain a greater understanding of the value of Deaf Culture and ASL.

### **Implications and Recommendations for Practice**

Professionals in the educational and medical fields who work with families who have children with cochlear implants will also benefit from learning about the experiences of the families in this study. Educators and professionals who work with deaf children typically focus on supporting deaf children assimilation into the hearing world by teaching them how to speak in English and overlook the possibilities of promoting bilingualism to enhance their linguistic development (Kermit, 2010; Humphries et al., 2012). Professionals also need to understand that children with cochlear implants are still deaf and may value maintaining a bicultural identity because it can increase self-esteem and self-confidence. Families frequently are given false impressions that cochlear implants make it possible to acquire spoken language easily and rapidly. As a result, families have misconceived expectations about cochlear implants and are not prepared to deal with the remaining limitations and long-term management of cochlear implants

(Christiansen & Leigh, 2004; Weisel et al., 2007; Zaidman-Zait & Most, 2005). It is critical to inform families about the realities of cochlear implantations.

Learning about families' experiences and goals in promoting bilingualism in ASL and English may encourage professionals to explore their own ideologies about language and their interactions with families who have deaf children. Hopefully, it will help transform their attitudes and perspectives from focusing on the fixing the child's hearing loss to promoting the development of bilingualism. Creating positive attitudes toward bilingualism and deaf children is an important goal when educating families and professionals. Families and professionals need to understand the value as well as the advantages of promoting a child's linguistic development in both visual language and spoken language as early as possible. They also must to understand the possible harmful risks of withholding sign language until after a child does not successfully develop spoken language skills (Kermit, 2010; Humphries et al, 2012). Also, with positive attitudes towards deaf children, families will have less apprehensiveness and stress about raising a deaf child (Hintermair, 2004, 2006; Young, 1999).

Professionals also need to be knowledgeable and sensitive towards Deaf families' unique strengths and challenges faced when supporting their children with cochlear implants. Professionals should be respectful and supportive of Deaf families' desire to maintain bilingualism in ASL and English with their children. Using Deaf families' strengths, such as a family's cultural competences and diversity, having access to strong language models in ASL, and sharing personal experiences of being deaf, can be instrumental in compensating for the challenges of being a part of a Deaf family.

Families will also benefit from learning about typical bilingual development in ASL and English and research documenting the advantages of bilingualism for the overall development of children with cochlear implants. Educating families about bimodal bilingualism should also include specific and evidence-based strategies about how this approach can be designed to facilitate spoken and sign language development (Archbold et al, 2006, 2008; Bat-Chava & Deignan, 2001; Hyde & Punch, 2011). Families need to understand that bilingual development typically tends to be “messy”, that it does not have clear and linear trajectories of development in either language, and that learning two or more languages does not cause language delay or confusion. Developmental leaps or dominance in one language over other is perfectly normal. DeHouwer (1999) argues dominance in one language depends on external factors such as language usage, motivation, and communicative needs. To achieve bilingualism in ASL and English, adequate language inputs in both languages must be utilized. There is also the need to reduce the pressure on learning English from societal and educational environments and to embrace and reinforce the advantages of bilingualism for optimal development.

Professionals who are knowledgeable in deaf education and bilingualism can benefit from learning about families’ challenges and frustrations with supporting children’s bilingual development in ASL and English as a means to help identify strategies that promote bimodal bilingual development. When programs claim they include bilingual approaches, a further investigation of the types of bilingual practices is needed. It is important to acknowledge how a bimodal-bilingual approach differs from

approaches that use a sign system, such as Signing Exact English (SEE) or sign-supported speech (SSS), as a support to developing English and to ensure a full, visual language is utilized. It is also important to acknowledge that each child's path to become bilingual is unique due to multiple factors.

Developing a systematic, individualized plan to monitor a child's development and use of both languages is recommended. Through individualized planning, it is possible to design the use of signed and spoken language to reflect the varied characteristics of the child (Gárate, 2011; Nussbaum & Scott, 2011; Nussbaum et al., 2012). Individualized planning can include specific recommendations for families' language practices and use at home and for educators to help ensure individual goals are met (Swanwick & Tsverik, 2007; Gárate, 2011).

### **Implications and Recommendations for Policy**

To accomplish bimodal bilingualism in a larger context, revisiting language policies for deaf children is needed; especially now that more children are receiving cochlear implants and yet continue to have challenges in language development. Language policies in schools and programs that serve deaf children need to be inclusive of sign language and to promote bilingualism because of its significant role for deaf children's development and education. (Swanwick & Gregory, 2007).

As indicated in the literature review, the information about language and deafness shared with families is often biased and reflects larger societal perspectives towards deafness. Families with deaf children often receive information that is predominantly from a medical view of deafness more than from a cultural and social perspective of

being deaf (Berg et al., 2007; Christiansen & Leigh, 2002; Hyde & Power, 2006; Young et al, 2006). After a baby is identified to be deaf through newborn hearing screening, families should have the right to obtain balanced and truthful information on language and communication development from both perspectives in order to properly consider the full range of emotional, social, and academic needs of their deaf child. It is the responsibility of medical professionals and educators to be non-judgmental in providing facts about language development and communication opportunities. Families have the right to know the possible challenges and benefits of learning language through sign language only, auditory-verbal training, bilingualism in sign language and spoken language, and other modalities. It is critical for families to be informed with non-judgmental and unbiased information about all communication modes in order to make informed decisions for their deaf child.

Advocating for a deaf child's human right to language, including sign language and promoting bilingualism, is crucial to safeguarding their linguistic, cognitive, and social growth. It is recommended for professionals, educators, researchers, and families to come together to work collaboratively and improve the policies promoting deaf children's education and their wellbeing.

It is also critical to include Deaf stakeholders, such as Deaf parents and Deaf professionals, in planning for policy and policy making. Deaf stakeholders are frequently excluded in policy-making efforts for deaf children. The hearing community tends to make decisions and recommendations for deaf babies and children without including members from the Deaf community. As Regan examined, "It appears that deaf people

remain, in essence, a colonized community in the midst of a much larger and more powerful hearing community” (2011, p. 627). Their perspectives and experiences as a Deaf person can contribute greatly when improving practices by incorporating cultural elements and competence for whole child’s wellbeing.

### **Summary of Recommendations**

Findings from this study warrant several recommendations for families and professionals to enhance practices in supporting deaf children with cochlear implants and their families. A summary of recommendations are listed below:

- Families and professionals first need to explore their own and others’ beliefs and ideologies about language and understand how own beliefs may influence their practices in supporting children’s language development. Their practices may have an impact on children’s language outcomes.
- Bilingual language planning policy must be revisited in order to ensure the policies are inclusive of both languages, ASL and English. Systematic, individualized planning can be created to monitor an individual child’s development and use of both languages. Strategies to explore language policies as recommended by Sánchez and Thorp (1998) includes; to develop a reciprocal relationship with families and communities by having a dialogue about their experiences and perspectives about maintaining bilingualism for their children and to examine the balance or imbalance of power within the educational program related to language use and resources.



- Families and professionals will benefit from learning about the advantages and challenges of maintaining bilingualism and how it can safeguard a child's linguistic development. It is also helpful to learn more about bilingual development in ASL and English as well as strategies on how to promote bilingualism at home and at educational facilities.
- It is critical that families are informed on the realities of the cochlear implant technology. Research has shown the outcomes to be unpredictable; there are many factors that may impact deaf children's spoken language development, regardless of their cochlear implants.
- Professionals need to be respectful and sensitive towards Deaf families with children who have cochlear implants and recognize their unique strengths and challenges. Professionals also must reduce the pressure on families with deaf children to push learning English only and, instead, recognize how bilingualism can maximize children's growth. One strategy is to explore Deaf family and Deaf community stories from sociohistorical lens to learn about unique cultural views and experiences related to maintaining bilingualism (Sánchez, 1999).

### **Limitations of the Study**

It is important to address the limitations of this study when discussing the outcomes of the research. The goal of this study was to acquire detailed knowledge about several Deaf families' perspectives and beliefs, not reach generalizations about all Deaf

families. There were several limitations in the study which mainly related to the participants and the use of electronic surveys.

The number of participants was too small and potentially unrepresentative to draw generalizable conclusions from the quantitative data. The population of deaf families with children who have cochlear implants was scarce and scattered across the country. It was a challenge to locate willing participants since the cochlear implant issue is still controversial within the deaf community and it can be a sensitive topic for some families. They may have been hesitant to participate in the study.

The participants' experiences may not reflect the experiences of all Deaf families with children who have cochlear implants. A majority of the parents are white (94%) and are well educated. 82% of the participants completed their bachelor's degree and/or sought higher degrees. This group may be more knowledgeable about the advantages of bilingualism and language development than other families from different backgrounds. Families from diverse backgrounds also may have unique strengths and challenges that differ from the participants in this study.

All of the families in this study perceive their children's cochlear implants to be a beneficial tool for their successful development of both languages. Other parents who feel their children were unsuccessful with their implants may not have volunteered to participate in this study (as suggested by Christiansen and Leigh's 2002 study). Their perspectives and experiences can be resourceful to better understand the limitations and challenges experienced by families with children who have cochlear implants.

Conducting electronic surveys has several drawbacks. First, the electronic survey is only available to individuals who have access to the Internet; therefore, some families may not be aware about this study or were not comfortable with the computer technology. The information about the study was mainly dispelled through the Internet, on the Cochlear-Implanted Children with Deaf Adults (CICDA) listserv and the Hands and Voices website. Even though snowball sampling was highly encouraged, there were probably many other families who were not aware of the study.

The survey questionnaires may not fully capture the essence of the families' beliefs about bilingualism. The mixed method design allowed for the gathering of the families' general beliefs about bilingualism in ASL and English. The qualitative part of the study reflects only a few of the families' experiences and perspectives. A longitudinal study will be needed provide a bigger picture about children's language development in ASL and English.

### **Recommendations for Future Research**

More studies are needed to look beyond spoken language outcomes to measure children with cochlear implants in their long-term development and achievement. Bilingualism's impact on the linguistic, cognitive, social, emotional, and academic development of children with cochlear implants requires much more study. It would be helpful to conduct longitudinal studies comparing cochlear-implanted children who are bilingual in ASL and English or who are English only to better understand the role of bilingualism for children who have cochlear implants.

The outcomes from this study indicate highly-educated and white, Deaf parents have positive beliefs and perspectives towards bilingualism in ASL and English for their children who have cochlear implants. Future research is needed to involve more families from diverse backgrounds on their beliefs, perspectives, and experiences with children who have cochlear implants. Families from diverse backgrounds can contribute unique perspectives on their strengths and challenges in supporting their children's language development. Also, there are several hearing parents who embrace bilingualism in ASL and English for their cochlear-implanted children and it should be explored if both hearing and deaf parents share similar perspectives. It may be helpful to encourage hearing parents to consider promoting bilingualism with their children, even though they may not be fluent in ASL like most Deaf parents. Additional studies should explore child and adolescents' perspectives on their experiences with their cochlear implants, their bilingualism, and their quality of life. It is also recommended to explore effective practices and strategies to facilitate bimodal-bilingual development in both signed and spoken languages for children with cochlear implants in homes and educational programs.

## **Conclusion**

This study examined the beliefs and perspectives of seventeen Deaf families with children who have cochlear implants in North America on bilingualism in ASL and English through a survey and follow-up interviews. The findings indicate families, overall, exhibited positive perspectives towards American Sign Language and English for their children and valued maintaining bilingualism.

The findings indicate parents' familial and educational experiences were instrumental in developing ideologies about language and bilingualism for their children. The research suggests how parents' prior experiences and knowledge helps constructs their own beliefs and perspectives towards language use and practices with their children.

Families also expressed some challenges and offered some solutions in maintaining bilingualism with their children. This research provides glimpses of families' unique strengths and challenges in supporting children's bilingual development in ASL and English that can be helpful for other families and professionals to better facilitate deaf children's language development.

Most literature on this topic focuses on hearing families and their experiences with their children with cochlear implants, but this study provides families with a new perspective that currently does not exist in the canon. The findings are valuable in broadening possibilities for deaf children and recognizing the advantages of maintaining bilingualism to optimize their cognitive, social, and linguistic growth to be successful Deaf people in our English-dominant society.

## APPENDIX A

### **Recruitment material posted on Hands & Voices Research Opportunities Page & Cochlear Implanted Children of Deaf Adults (CICDA) Listserv**

**Date survey is open:** October 1, 2011-December 1, 2011

**Name:** Deaf Parents of Deaf Children with Cochlear Implants: Perspectives on Bilingualism in ASL/English

**Location:** Nationwide in the US

#### **An Invitation to Participate in Study:**

#### **Deaf Parents of Deaf Children with Cochlear Implants: Perspectives on Bilingualism in American Sign Language & English**

#### ***What is the purpose of the study?***

There are limited studies from deaf families' perspectives on deaf children with cochlear implants. The purpose of the study is to explore deaf families' beliefs, perspectives and attitudes about language development in ASL and English. This brings a unique aspect to the research field in gaining an understanding how deaf children with cochlear implant who have Deaf parents develop spoken and signed languages.

#### ***Who may participate in the study?***

Deaf families who have children with cochlear implants nationwide are encouraged to participate in the study. At least one parent or a caregiver who is deaf in the family will be eligible to participate. Their language use may range from being fully oral to being bilingual in American Sign Language and English. They are welcome to participate by answering survey questionnaire online.

Three to five families will be asked to continue their participation in the study to do a follow-up interview with the researcher. The criteria for participating in the interview are families who 1) has a child or children at an age range between birth to 8 years old who has cochlear implants and 2) used American Sign Language with their child/children after birth.

#### ***Who in the family will be asked to participate?***

Any family member who has a deaf child with cochlear implants will be asked to participate in the study. A family member who is knowledgeable and comfortable in sharing their beliefs, perspectives, and attitudes about supporting their children with cochlear implants' language development is preferred.

***What will family be asked to do?***

A family member from each family will be asked to fill out an electronic survey online asking: 1) standard demographic data about the family and the child, 2) series of numeric scales on ratings of perceived family's language skills, 3) provide opinions on 10 belief statements on bilingualism in ASL and English, and 4) answer 3-5 open-ended questions asking about family goals and ideal educational placement, as well as on expectations about bilingualism. They will be encouraged to share the link to the survey with other deaf families with children who have cochlear implants.

Three to five families who are interested to participate in a follow up interview will be interviewed at a location convenience to the family. The interview will be semi-structured formal and will last no longer than one hour. The interview will be videotaped. The videotapes will be used solely for the research purposes associated with this study. Any information collected, including videotapes will be kept confidential by maintaining all materials in locked files and offices accessible only to the researcher of this study.

***Will anyone be told what is said during the interview?***

No. Everything shared by all participants is strictly confidential. No specific information from or about any family members will be reported to anyone. No names will appear on the study's forms or reports, and each family will be given a code number and pseudo names to protect their privacy.

***What are the benefits and risks of participating in the study?***

There are no direct benefits but anticipated benefits in contributing to general knowledge about deaf parents and their perspectives on bilingual education for deaf children with cochlear implants.

There are no invasive procedure involved and no potential physical, social, or legal risks to the participants that would result from being involved in the study.

***Will I be compensated for participating in the study?***

Yes. Participants will receive \$10 dollars Amazon gift card for their participation on the survey. Families who participate in a follow-up interview will be compensated with \$50 dollars Amazon gift card.

***Can I withdraw from the study at any time?***

Your participation in the study is completely voluntary. You have the right to withdraw from the study at any time or refrain from answering any questions without penalty.

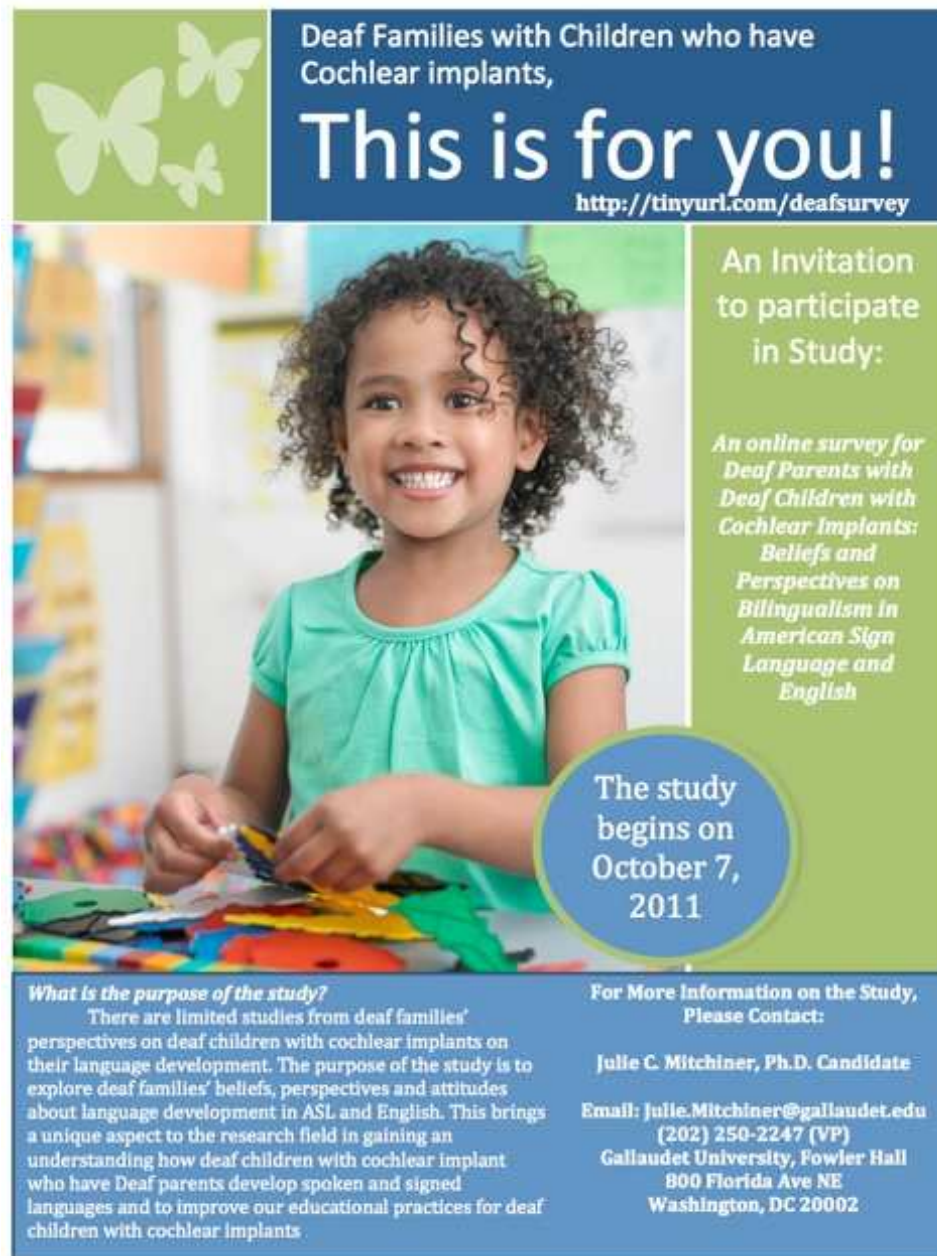
***How can a family find out more information about participating in the study?***

If you are interested in participating, please fill out the online survey at:  
<http://tinyurl.com/deafsurvey>

**Thank you in advance for your interest**

## APPENDIX B

Electronic Flyer on Hands and Voice website and CICDA listserv



The flyer is a rectangular graphic with a blue header and footer, and a green sidebar on the right. The header contains the title 'Deaf Families with Children who have Cochlear implants, This is for you!' and a URL. The sidebar contains an invitation to participate in a study. The main body features a photo of a smiling young girl with curly hair, wearing a green shirt, sitting at a table with colorful paper. A blue circle overlay on the photo states 'The study begins on October 7, 2011'. The footer contains two columns of text: 'What is the purpose of the study?' and 'For More Information on the Study, Please Contact:'.

Deaf Families with Children who have Cochlear implants,  
**This is for you!**  
<http://tinyurl.com/deafsurvey>

An Invitation to participate in Study:

*An online survey for Deaf Parents with Deaf Children with Cochlear Implants: Beliefs and Perspectives on Bilingualism in American Sign Language and English*

The study begins on October 7, 2011

**What is the purpose of the study?**  
There are limited studies from deaf families' perspectives on deaf children with cochlear implants on their language development. The purpose of the study is to explore deaf families' beliefs, perspectives and attitudes about language development in ASL and English. This brings a unique aspect to the research field in gaining an understanding how deaf children with cochlear implant who have Deaf parents develop spoken and signed languages and to improve our educational practices for deaf children with cochlear implants

**For More Information on the Study, Please Contact:**  
Julie C. Mitchiner, Ph.D. Candidate  
Email: [Julie.Mitchiner@gallaudet.edu](mailto:Julie.Mitchiner@gallaudet.edu)  
(202) 250-2247 (VP)  
Gallaudet University, Fowler Hall  
800 Florida Ave NE  
Washington, DC 20002



## APPENDIX C

### **ELECTRONIC INFORMED CONSENT FORM**

Project Title: Deaf Parents of Deaf Children with Cochlear Implants: Perspectives on Bilingualism in ASL/English

Co-Principal Investigator: Dr. Sylvia Sanchez- George Mason University  
Co-Principal Investigator: Julie Mitchiner                      Address: Gallaudet University  
Phone: (202) 250-2247 (VideoPhone)                              800 Florida Ave NE  
Email: Julie.Mitchiner@gallaudet.edu                              Washington, DC 20002  
Department: Education-Fowler Hall

Julie Mitchiner is a doctoral candidate at George Mason University and She is also on the faculty with the Education Department at Gallaudet University. Julie is conducting research for her dissertation on deaf families perspectives and beliefs on bilingualism in ASL and English for children with cochlear implants.

This study:

1. You will be asked to participate in a survey online to share: 1) standard demographic data about the family and the child, 2) series of numeric scales on ratings of perceived family's language skills, 3) provide opinions on 10 belief statements on bilingualism in ASL and English, and 4) answer 5 open-ended questions asking about family goals and ideal educational placement, as well as on expectations about bilingualism.
2. It is anticipated the survey should last no longer than an hour. The data from the survey will be confidential.
3. You will be paid \$20 dollars in Amazon gift card for your participation through email.
4. You are encouraged to share the link of the survey with other deaf families who have children with cochlear implants.
5. You will be asked if you would be interested to participate in a follow-up interview. It is anticipated the interview should last no longer than an hour. The interviews will be videotaped. The videotapes will be used solely for the research purposes associated with this study. Any information collected, including videotapes will be kept confidential by maintaining all materials in locked files and offices accessible only to the researcher of

this study. You will be paid \$50 dollars in Amazon gift card for your participation in the follow-up interview.

**Language:**

The survey will primarily be written in English. If you have any other preference for language and communication style, I try to accommodate to your preferences. Please let me know any particular communication requirements that you require.

**Risks:**

There is no more than minimal risk to individuals who participate in this research study.

**Benefits:**

There are no benefits to you, but there may be benefits contributing to general knowledge about deaf parents and their perspectives on bilingual education for deaf children with cochlear implants.

**Confidentiality:**

Any information collected will be kept confidential by maintaining all materials in locked files and offices accessible only to the researcher. While it is understood that no computer transmission can be perfectly secure, reasonable efforts will be made to protect the confidentiality of your transmission. Your email and home addresses will be removed from the survey and stored in a second database. The addresses will be deleted from the second database after compensations are given. The research is being conducted under the supervision of Dr. Sylvia Sanchez. She can be reached through phone at (703) 993-4370 or through email at ssanchez2@gmu.edu

**Voluntary Participation:**

Your participation is voluntary; you may withdraw from the study at any time and for any reason. If you decide not to participate or withdraw from the study, there is no penalty or loss of benefits to which you are otherwise entitled. There are no costs to you.

**Compensation:**

You will be compensated with a \$20 Amazon gift card for your participation.

**Results:**

By your request, a final copy of the published dissertation will be sent to you.

**Contacting the Researcher or the IRB/HSRB:**

This research is conducted by Julie Mitchiner from the College of Human Development at George Mason University. She can be reached at [julie.mitchiner@gallaudet.edu](mailto:julie.mitchiner@gallaudet.edu) (Julie); for any questions or to report any research-related problems.

You may contact George Mason University Office of Research Subject Protections at 703-993-4121 or Gallaudet University Institutional Review Board for the Protection of Human Subjects (IRB) at 202-651-5400 (v/tty) or [irb@gallaudet.edu](mailto:irb@gallaudet.edu), if you have any questions or comments regarding your rights as a participant in the research. This research has been reviewed according to George Mason University and Gallaudet University procedures governing your participation in this research.

**Intent to Participate:**

If, after reading this far, you agree to participate, then read the following, and click "yes" below to give consent to participate in this study.

**Disclaimer:**

Participants who do not fit the study participant requirements will not be compensated. The requirements of the study participant are families who: 1) have at least one deaf parent or deaf caregiver, 2) have children with cochlear implants, and 3) lives in North America. Any fraudulent responses on the survey will be eliminated from the data collection and will not be compensated.

I have read this Informed Consent Form and agree to participate in this study conducted by Julie Mitchiner. I understand that I can withdraw from this study at any time without penalty or prejudice. I understand that I will receive payment for my participation.

I give consent to participate in the study.

☐ Yes

☐ No

## APPENDIX D

### Electronic Survey Questionnaire

#### **Tell me about you and your family.**

Person completing the survey \*

Your relationship with your child. (Mother, Father, etc.)

Who lives in your home? \*

List people who live in your home and list relationships to your child. (i.e. brother, grandmother, uncle, friend, etc.)

Language models for your child \*

List people in your home who provide language models to your child. (i.e. parents, grandparents, siblings, etc.)

What is your race? \*

Check that apply.

- ◇ African-American, Black
- ◇ Asian, Asian American
- ◇ Asian-Pacific Islander
- ◇ Hispanic, Latino, Spanish-origin
- ◇ Native American
- ◇ White

Other:

What is your partner or spouse's race? \*

Check that apply.

- ◇ African-American, Black
- ◇ Asian, Asian American
- ◇ Asian-Pacific Islander
- ◇ Hispanic, Latino, Spanish-origin
- ◇ Native American

◇ White

◇ N/A

Other:

Additional member who holds parental/care-giving responsibilities

What is their race?

◇ African-American, Black

◇ Asian, Asian American

◇ Asian-Pacific Islander

◇ Hispanic, Latino, Spanish-origin

◇ Native American

◇ White

◇ N/A

Other:

Your Highest Level of Education \*

You

◇ Less than High School

◇ High School/GED

◇ Some college

◇ 2-year college degree (Associates)

◇ 4-year college degree (BA, BS)

◇ Master's degree

◇ Professional degree (MD, JD)

◇ N/A

Your Partner or Spouse's Highest Level of Education \*

Your Partner or Spouse

◇ Less than High School

◇ High School/GED

◇ Some college

◇ 2-year college degree (Associates)

◇ 4-year college degree (BA, BS)

◇ Master's degree

◇ Professional degree (MD, JD)

N/A

Additional member who holds parental/care-giving responsibilities

Highest Level of Education

◇ Less than High School

◇ High School/GED

◇ Some college

- ◇ 2-year college degree (Associates)
- ◇ 4-year college degree (BA, BS)
- ◇ Master's degree
- ◇ Professional degree (MD, JD)
- N/A

What is your total household income? \*

Include all earners in the household

--

Your identity \*

You

- ◇ Deaf
- ◇ Hearing
- Other:

Your partner/spouse's identity \*

Partner/Spouse

- ◇ Deaf
- ◇ Hearing
- ◇ N/A
- Other:

Additional member who holds parental/care-giving responsibilities

Identity

- ◇ Deaf
- ◇ Hearing
- ◇ N/A
- Other:

What are your first, second, and/or third languages? \*

You

	American Sign Language	English	Other	NA
First language				
Second language				
Third language				

If you checked English, is this spoken, written or both? for parent 1 \*

You

- ◇ Spoken
- ◇ Written
- ◇ Both

If you checked "other" for any of the choices what language is this?

You

--

What are your partner/spouse's first, second, and third languages? \*

Your Partner/Spouse

	American Sign Language	English	Other	NA
First language				
Second language				
Third language				

If you checked English, is this spoken, written or both? Parent 2 \*

Your Partner/Spouse

- ◇ Spoken
- ◇ Written
- ◇ Both

If you checked "other" for any of the choices what language is this?

Your Spouse/Partner

--

Additional member who holds parental/care giving responsibilities

First, second, and/or third languages

	American Sign Language	English	Other	NA
First language				
Second language				
Third language				

If you checked English, is this spoken, written or both?

- ◇ Spoken
- ◇ Written
- ◇ Both

Additional member who holds parental/care-giving responsibilities

- ◇ ASL and spoken English (bilingual-separated)
- ◇ Sign and spoken English (simultaneously)
- ◇ ASL only
- ◇ Spoken English only
- ◇ Cued speech
- Other:

Please give ratings on perceived language abilities in ASL and English for self and other members in your family.

1                  2                  3                  4                  5  
very poor                                 very fluent

1	2	3	4	5
very poor				very fluent

1		2		3		4		5
very poor								very well

[illegible][illegible]

1                  2                  3                  4                  5



very poor

very fluent

Your Partner or Spouse's Reading in English Abilities?

1

2

3

4

5

very poor

very well

Your Partner or Spouse's Writing in English Abilities?

1

2

3

4

5

very poor

very well

### **Your Child with Cochlear Implants**

What gender is your child with CI? \*

Child 1

◇ Female

◇ Male

◇ Other:

When did your child become deaf? \*

i.e. before or at birth, age when child became deaf, or unknown

Date of Birth (Month, Day, Year) \*

Child 1 (i.e. 5/28/06)

Age of Cochlear Implant Activation (Year & Month) \*

Child 1 (i.e. 3 years and 5 months old)

Age of 2nd Cochlear Implant Activation

2nd CI - Write N/A if it does not apply.

Is your child still using CI? \*

◇ Yes-please skip the next question

◇ No

Please briefly share why your child is currently not using CI.

Does your child have disabilities? If so, what disability/disabilities does your child have?



1=strongly disagree  
2=disagree  
3=neither agree or disagree  
4=agree  
5=strongly agree

I value for my child to develop spoken English skills. \*

1	2	3	4	5
strongly disagree				strongly agree

I value for my child to develop American Sign Language skills. \*

1	2	3	4	5
strongly disagree				strongly agree

I value for my child to develop reading and writing in English skills. \*

1	2	3	4	5
strongly disagree				strongly agree

I believe sign language reinforces spoken language development. \*

1	2	3	4	5
strongly disagree				strongly agree

I believe spoken language reinforces sign language development. \*

1	2	3	4	5
strongly disagree				strongly agree

I believe children who learn two or more languages have cognitive and academic advantages. \*

1	2	3	4	5
strongly disagree				strongly agree

I believe learning two or more languages can causes language delays. \*

1	2	3	4	5
strongly disagree				strongly agree

### **Open-Ended Questions about Your Beliefs and Values**

Please answer the questions by typing your responses.

What is your most important reason for providing your child with a cochlear implant? \*

What are some of your challenges you've had in supporting your child's language development? \*

Describe your ideal educational placement for your child with CI. \*

What are your goals for your child to achieve in the future? \*

Do you have additional comments?

Do you have more than one child with a cochlear implant? \*

◇ Yes

◇ No

### **Information on your second child with CI**

If you have another child with cochlear implant, you may only fill out information about your second child in the survey.

What gender is your second child with CI? \*

Child 2

◇ Female

◇ Male

◇ Other:

When did your second child become deaf? \*

i.e. before or at birth, age when child became deaf, or unknown

Date of Birth of your 2<sup>nd</sup> child (Month, Day, Year) \*

Child 1 (i.e. 5/28/06)

Age of Cochlear Implant Activation for your second child (Year & Month) \*

Child 1 (i.e. 3 years and 5 months old)

Age of 2nd Cochlear Implant Activation for your 2<sup>nd</sup> child

2nd CI - Write N/A if it does not apply.

Is your child still using CI? \*

- ◇ Yes-please skip the next question
- ◇ No

Please briefly share why your child is currently not using CI.

Does your child have disabilities? If so, what disability/disabilities does your child have?  
Being deaf is not included. (i.e. Autism, learning disabilities, Usher Syndrome)

### **Your Second Child's Language Abilities and Expectations**

If your child is progressing at age-level in language development, choose #3.

Your second child's language abilities in American Sign Language? \*

1	2	3	4	5
below average				above average

Your second child's language abilities in Spoken Language? \*

1	2	3	4	5
below average				above average

Your second child's literacy skills in English (reading and writing). \*

1	2	3	4	5
emerging				proficient

What kind of ASL abilities do you expect your second child to achieve? \*

- ◇ None
- ◇ Being able to express and receive in ASL socially.
- ◇ Being able to express and receive in ASL academically.
- ◇ Being able to express and receive in ASL socially and academically.
- Other:

What kind of English abilities do you expect your second child to achieve? \*

- ◇ None
- ◇ Conversational fluency in English.
- ◇ Being able to read and write in English fluently.
- ◇ Being able to speak, read, and writes in English fluently.
- Other:

What communication mode does your second child with CI primarily use at school or daycare? \*

If your child is not attending school or daycare, choose NA.

- ◇ ASL and spoken English (bilingual-separately)

- ◇ Sign and spoken English (simultaneously)
- ◇ ASL only
- ◇ Spoken English only
- ◇ Cued speech
- ◇ NA
- Other:

Are you interested to participate in a follow-up interview?

- ◇ Yes
- ◇ No

### **Participation in a follow-up interview**

Please leave either your email address or home address to show your interest to participate in a follow-up interview. Families will be compensated with a \$50 gift certificate for their participation. The interview will last up to one hour. The interview will be video recorded. The video will be accessed only by the researcher and two professional ASL interpreters (to transcribe from ASL to printed English). The videos will be completely destroyed after the research is completed. Your email and home addresses will be kept strictly confidential. The researcher will be the only person who will have access to it. After the research is completed, your contact information on file will be erased.

You may be or may not be contacted for an interview.

**Are you interested in participating in a follow-up interview?**

- ◇ Yes
- ◇ No

### **Your home address**

To send a letter to request for your participation in the interview

### **Your email address**

To send an email to request for your participation in the interview

**Do you want to be informed on the result of the study?**

- ◇ Yes
- ◇ No

**If yes, please leave your contact information**

An electronic copy of the results can be sent to you through email or a paper copy through email.

**Please leave your email address to receive \$20 Amazon gift card.**

Thank you for your participation!

**Thank you for filling the survey!**

## APPENDIX E

### **INFORMED CONSENT FORM (For Follow Up Interview)**

**Project Title:** Deaf Parents of Deaf Children with Cochlear Implants: Perspectives on Bilingualism in ASL/English

**Principal Investigators:** Dr. Sylvia Sanchez & Julie Mitchiner

**Phone:** (202) 250-2247 (VideoPhone)

**Email:** [Julie.Mitchiner@gallaudet.edu](mailto:Julie.Mitchiner@gallaudet.edu)

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Washington, DC 20002

**Department:** Education-Fowler Hall

I am a doctoral candidate at George Mason University and I am also a faculty with the Education Department at Gallaudet University. I am conducting research on deaf families' perspectives and beliefs on bilingualism for children with cochlear implants in ASL and English for my dissertation.

#### **This study:**

1. You will be asked to participate in a follow-up interview on your perspectives and beliefs in supporting your deaf children with cochlear implants and their language development in both American Sign Language and English (spoken and written). You are asked to share your thoughts, beliefs and perspectives on your child's bilingual development.
2. It is anticipated the interview should last no longer than an hour. The interviews will be videotaped. The videotapes will be used solely for the research purposes associated with this study. Any information collected, including videotapes will be kept confidential by maintaining all materials in locked files and offices accessible only to the researcher of this study.
3. You will be paid \$50 dollars Amazon gift card for your participation.

#### **Language:**

The interview will primarily be conducted in American Sign Language. A printed copy of the interview questions in English will also be provided. If you have any other preference for language and communication style, I try to accommodate to your preferences. Please let me know any particular communication requirements that you require.

#### **Risks:**

There is no more than minimal risk to individuals who participate in this research study.



**Benefits:**

There are no benefits to you, but there may be benefits contributing to general knowledge about deaf parents and their perspectives on bilingual education for deaf children with cochlear implants.

**Confidentiality:**

Any information collected, including videotapes will be kept confidential by maintaining all materials in locked files and offices accessible only to the researcher. The videotape of the interview will be destroyed and discarded after the study is completed. The research is being conducted under the supervision of Dr. Sylvia Sanchez. She can be reached through phone at (703) 993-4370 or through email at [ssanchez2@gmu.edu](mailto:ssanchez2@gmu.edu).

**Voluntary Participation:**

Your participation is voluntary; you may withdraw from the study at any time and for any reason. If you decide not to participate or withdraw from the study, there is no penalty or loss of benefits to which you are otherwise entitled. There are no costs to you.

**Compensation:**

You will be compensated \$50 Amazon gift card for your participation.

**Results:**

A copy of the transcript from the interview will be shared to check for any errors. By request, a final paper or electronic copy of the published dissertation will be sent to you.

**Contacting the Researcher or the IRB/HSRB:**

This research is conducted by Julie Mitchiner from the College of Human Development at George Mason University. I can be reached at [julie.mitchiner@gallaudet.edu](mailto:julie.mitchiner@gallaudet.edu) (Julie); for any questions or to report any research-related problems.

You may contact George Mason University Office of Research Subject Protections at 703-993-4121 or Gallaudet University Institutional Review Board for the Protection of Human Subjects (IRB) at 202-651-5400 (v/tty) or [irb@gallaudet.edu](mailto:irb@gallaudet.edu), if you have any questions or comments regarding your rights as a participant in the research. This research has been reviewed according to George Mason University and Gallaudet University procedures governing your participation in this research.

**Intent to Participate:**

If you agree to participate after reading this far, then read the following, print and sign your name below and enter the date.

I have read this Informed Consent Form and agree to participate in this study conducted by Julie Mitchiner. I understand that I can withdraw from this study at any time without penalty or prejudice. I understand that I will receive payment for my participation.

Your Name \_\_\_\_\_

Your Signature \_\_\_\_\_ Date \_\_\_\_\_

Version date: 6/30

## APPENDIX F

### *Interview Questions*

#### *Background Information*

1. Tell me a bit about yourself and your family. When did your child receive cochlear implant/s  
Follow-up: What was your family's reason for having your child receive a CI?  
Why is it important for your child to have a CI?

#### *Language Development before CI*

1. After your child was born, how did you communicate with your child?
2. Describe how you supported your child's language development at home before the child received CI.

#### *Bilingualism at Home*

1. What are your beliefs about your child's literacy and language development in general?
  - a. What are your thoughts about the role of sign language on spoken language?
  - b. What does being a bilingual means to you?
2. What are your thoughts about your child's language ability? How does your child communicate with you?
3. Can you walk me through the day how your child uses both languages on daily basis?
4. Can you share an activity or two on how you support your child's language development in both languages?
5. How much are ASL and/or English being used in home? Which is used more and why?
6. How do you provide support for ASL and English development, socially and academically at home?
7. What do you value about ASL and English?
8. How do you support and facilitate your child's language use in ASL and English?
9. What are some of the challenges you have experienced in supporting your child to maintain bilingual in both languages?

#### *Perspectives on Education*

1. What educational choices/decisions have you made for your child? Why did you make these choices?
2. How have school changed in providing support for child's language development in both languages?
3. What kind of support and services have you received from schools to maintain two languages?

#### *Goals and Dreams*

1. What are your goals for your child's future?

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## CURRICULUM VITAE

Julie Mitchiner graduated from California School for the Deaf in Fremont, California in 1993. She received her Bachelor of Arts in Early Childhood Education from Gallaudet University in 1998. Shortly after she received her BA, she received her Master of Arts in Deaf Education with a specialization in Family-Centered Early Education in 2000. She was employed as a preschool teacher at Kendall Demonstration Elementary School in Washington, DC for six years. She is currently employed as a faculty in the Education Department at Gallaudet University since 2006.