ASSISTING PARENTS IN BUILDING FOUNDATIONAL LANGUAGE
FOR THE FUNCTIONALLY DEAF CHILD: A RESOURCE FOR
PARENTS

A Project
Presented
to the Faculty of
California State University, Chico

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts
in
Teaching International Languages

by

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Summer 2012
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Patricia Cairns-Stephens

Summer 2012

APPROVED BY THE DEAN OF GRADUATE STUDIES
AND VICE PROVOST FOR RESEARCH:

_________________________________
Eun K. Park, Ph.D.

APPROVED BY THE GRADUATE ADVISORY COMMITTEE:

_________________________________
Hilda Hernández, Ph.D.
Graduate Coordinator

_________________________________
Rebecca L. Justeson, Ed.D., Chair

_________________________________
Suzanne B. Miller, Ph.D.
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DEDICATION

I dedicate this body of work to my three beautiful granddaughters. Each has been an inspiration in their own way. Paula with her linguistic ability to smoothly transition between two languages. Sofia for her independent spirit and her reserved reluctance to acquiring a heritage language. And, Peyton, to whom I owe much. Without Peyton, my understanding of language would not be as deep or rich. Her hearing impairment has been anything but an impairment. She has been a gift to all of us. Her strong will and lively spirit has made the journey an adventure. Bless them all, for my life is only richer with them.

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The tab features of American Sign Language linguistics (ASL Basics and Linguistic Concepts) given on the website, Sharing Literacy through ASL, could not have been done without the permission granted by the publisher, Gallaudet University Press, to adapt and reprint information from the text, *Linguistics of American Sign Language: An Introduction, 4th ed.*, by Clayton Valli, Ceil Lucas, and Kristin J. Mulrooney.

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ABSTRACT

ASSISTING PARENTS IN BUILDING FOUNDATIONAL LANGUAGE FOR THE FUNCTIONALLY DEAF CHILD: A RESOURCE FOR PARENTS

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Master of Arts in Teaching International Languages

California State University, Chico

Summer 2012

By addressing language acquisition and reading theory, the value of receptive input a first language (L1) provides and its significance to literacy within a family of incompatible modals (e.g., hearing parents and hearing-impaired child) was underscored. The author’s primary purpose was to foster hearing parents’ confidence in learning beginning American Sign Language (ASL), encourage them to be better first-linguistic teachers, and raise awareness to the importance parental support plays in the emerging literacy of a hearing-impaired child through vocabulary and phrases used from popular children’s books.

The vehicle used to accomplish the author’s objectives, an interactive website, was done in cooperation with a literacy program entitled The Shared Reading
Project through Gallaudet University’s Laurent Clerc National Deaf Education Center. Intended as a resource to bridge the gap between the beginning level of a hearing parent’s needs and the advanced level presented on the signed tapes, the website serves as a key to children’s books and corresponding DVDs/tapes by providing an English-ASL pictorial glossed translation. Hyperlinks allow the user to access explanations and give insight into contrastive linguistics of both languages.

Establishing that ASL is a natural language, the principles of bilingualism apply supporting cognitive, social, and linguistic growth. Research revealed a direct correlation between improved literacy and school progress when there was strong receptive and expressive vocabularies in both languages. Often referred to as the Matthew effect, research further revealed that a diminished linguistic foundation lead to an educational gap that cannot be closed between the poor reader and the more proficient peer.
CHAPTER I

INTRODUCTION

Purpose of the Project

Approximately two to three out of every thousand babies is born hearing impaired (National Institute of Health [NIH], 2010). The majority of these babies are born to hearing parents. These statistical facts were brought into focus and became much more personal when midway through a master’s program for Teaching English as an International Language at California State University, Chico, the author’s daughter gave birth to a beautiful, hearing-impaired (HI) baby girl.

Gallaudet University, located in Washington D.C., is considered one of the world’s premier research institutions with respect to the Deaf communities’ language and culture. It serves as a world-class facility for liberal education and career development for the deaf and HI. Through much research, the Gallaudet University’s Laurent Clerc National Deaf Education Center has developed a program called The Shared Reading Project. The program’s intent is to encourage and support literacy and American Sign Language (ASL) by providing book bags to families of pre-emergent hearing-impaired children. Each bag contains a popular children’s book and an accompanying video tape narrating the book in American Sign Language. The book bag was originally created to support a program in which a deaf adult would be specially trained as a tutor to visit the homes of HI children on a regular basis. Ideally, the tutor would first demonstrate the
story, guide parents as they learn how to sign the story to their HI child, and continue as a consultant and support to parents (Gallaudet University, Laurent Clerc National Deaf Education Center, n.d.) as they become more proficient in signing and story telling. However, the tutoring component of the program is dependent on the availability of deaf or HI adults in a community, their willingness to be trained, and available funding. More often than not, the book bags are loaned out to hearing parents with little or no assistance. An instructor for Butte County Office of Education serving the deaf and HI gave my daughter one of Gallaudet’s book bags to teach her how to read a book to her baby using sign language. She had had no prior exposure to signing. While perusing the children’s book, *Goodnight Moon*, and then reviewing one of the supplementary tapes for that book, it was discovered that the level of the ASL tape accompanying the book was not comprehensible to a non-signing hearing individual. The level of signing on the tape was at least a Level 5 on a scale of 1-7. Although the tape showed the book while signing, there was no way to make meaning from sign or correlate the words to the signs. There were no captions, sound, or bolded words/phrases for emphasis as the interpreter told the story in sign. The immediate reaction was to look in the book bag for the key or guide that translated the signs sequentially. There was none. With the absence of a tutor, a gap exists between the hearing parents with little or no knowledge of sign language and the advanced DVD/tapes that Gallaudet includes in their book bag with a popular children’s book. As a master’s project, this author decided to design a resource intended to bridge the gap between the beginning level a hearing parent needs and the advanced level presented on the tapes by providing an English gloss corresponding to ASL pictorials as a key for each book and tape.
A significant problem is created when hearing parents with a HI child do not take the initiative to learn a manual signed language. The parents and baby will not share a common language. This lack of a common language restricts the amount of interactive communication with the baby’s first teacher, the parents, and within the family where much incidental language is acquired. Not only does this situation create a deficit of language acquisition, but also a type of social isolation within and outside of the family. Further, it is found that this incompatible pairing of modals (e.g., hearing parents and HI baby) often prevents an equivalent amount of exposure to reading and literature as the child’s hearing peers.

It is a discouraging moment when parents try to read for fun to their baby and realize the child cannot understand what is being said. Parents have no way to provide receptive skills unless they learn sign language, a second language. In addition, there are the logistics of signing while holding both the book and the baby. The parent’s hands are not free to be able to sign, nor do the parents have the child’s full attention unless they have face-to-face visual contact while communicating. Coupled with a baby’s short attention span, this discourages parents from trying to read to their infant, and typically, they stop all together. The outcome is that between the ages of 0-5 years a child may not develop a strong first language (either native/home spoken or sign language) and begin school with impoverished pre-literacy skills due to the underexposure to printed material.

The author of this thesis will support this master’s project by discussing acquisition of language, literacy, and reading theory. The thesis will progress through the reading process and show where the process breaks down for the HI and discuss some compensating pedagogical techniques for teaching reading to the HI child. Throughout
the thesis, the author will briefly touch on some of the social, cultural, and family issues that transpire when there is an incompatible pairing of modals.

Scope of the Project

This master’s project will complement Gallaudet’s *Shared Reading Project* with an interactive website (see Appendix A) that allows the user to access each book in *The Shared Reading Project* by title. Each book from Gallaudet’s advanced level ASL DVD/tape will be glossed into English. Each English word or phrase will be further translated by displaying a pictorial format demonstrating the ASL matching the DVD/tape. The website is intended to serve as a key for popular children’s books for any beginning learner of ASL. In addition to the book’s translations/interpretations into an English/ASL gloss, there will be accompanying hyperlinks and web pages of ASL grammar, syntax, and fingerspelling (manual letter signs corresponding to the English alphabet).

Significance of the Study

This master’s thesis project serves multiple purposes. It is intended to support the hearing parent in learning beginning sign language as a second language through the vocabulary and phrases of children’s books. It will also serve as a useful resource that will close the gap between the parent beginning to learn ASL and the advanced ASL tapes. Not only will it help to close the gap, but the website will also serve as a tutorial reference for ASL grammar, syntax, and fingerspelling, giving the user a greater understanding as to why ASL is its own language and explicitly how it functions. It is also anticipated that the additional support will foster parents’ confidence in the skill and
give them the ability to support their HI child’s emerging literacy through incidental reading. Through the supportive research, I hope to raise awareness about the benefits of exposing emerging literate infants (hearing or HI) to printed text by reading for enjoyment. This author also hopes to point out some of the repercussions that may occur if infants are not exposed to printed text and read to from the time they are born until they begin formal schooling. The author has found that there are too few resources available to the hearing parent of a HI infant that encourage beginning ASL as a second language for the parents while reading aloud to their child. There are even fewer resources that translate popular children’s books from English into beginning ASL, which would encourage literacy. In short, the purpose of this thesis is to encourage parents to be better first linguistic teachers to their HI newborns.

Definition of Terms

ASL

The abbreviation for a natural language used by members of the North American Deaf community referred to as American Sign Language (ASL). It is an autonomous linguistic system with all the necessary features that constitutes a legitimate language. This unique, rule-governed communication system is independent of any majority or dominant language system (Valli, Lucas, & Mulrooney, 2006), yet is intimately influenced and connected to the majority or dominant language through the educational system and written component of the majority or dominant language (Marschark & Spencer, 2003).
Communication Modes

The title used for labeling receptive input options available to HI students within the United States classrooms through the various programs and services offered in schools. Included under this title or heading are auditory/oral, Cued speech, ASL, sign with speech (Total Communication), and Bilingual (ASL and English) (Hotto, 2011)

Fingerspelling

Fingerspelling is the manual letter signs corresponding to the English, majority language alphabet and number system used in the United States. Its purported benefits are assisting the deaf and hard of hearing children in learning English, particularly orthography and morphology. It is used in American Sign Language, as well as other signed systems (e.g., SEE, MSE) (Paul, 2001).

Functionally Deaf

When used, the words ‘hearing impaired’ and ‘deaf’ address neither the age of onset, the degree of hearing loss, or whether one or both ears are impaired. Flexer (n.d.) uses the words ‘hearing impaired’ and ‘deaf’ functionally. If language and receptive input is attained largely through a visual/manual communication system, a person is functionally deaf. Visual input can include lip-reading, cued speech, and any number of signed systems or languages, including ASL. If language and receptive input is attained largely through both hearing and listening, then a person is functionally hard of hearing. This could apply to a person born deaf who chose to use some form of augmentation (e.g., hearing aids or cochlear implants) to improve their receptive input (Flexer, n.d.)
Gloss

A means of annotating the visual ASL into the majority written language of English and conversely from English into ASL. It works as any bilingual dictionary, except every manual ASL sign is pictured and corresponds to an English translation. The corresponding English word is written in all small capital letters, such as the word CAT, representing the sign in pictorial format. This is called a ‘gloss’. It is possible that a dictionary of ASL could contain only pictures and no words of English (Valli et al., 2006).

Hearing Impaired (HI)

HI is a general term used to refer to any degree of hearing loss. More precisely, this audiological expression refers to the degree of hearing loss that ranges from slight to extreme/profound regardless of the cause or location of the problem within the ear(s). A small reduction in acuity as measured by intensity across frequencies can lead to less receptive input of the spoken language. An acceptable limit is no more than 27 decibels (dB). According to Paul (2001), “even a slight impairment can negatively affect language, literacy, and academic achievement” (p. 14). If an individual is not able to attain at least 27 dB, then they may need to seek augmentation and/or rely on a visual/manual communication system.

Manually Coded English (MCE)

This terminology encompasses a host of different types of signed systems that can vary from country to country. For example, in the United States, Signed Exact English (SEE) and Linguistics of Visual English (LOVE) are considered Manually Coded English systems (Golden-Meadow & Mayberry, 2001; Valli et al., 2006). MCE was
created to accommodate hearing parents and instructors so that they can sign using Standard English (morph-syntactic) order in a visual, manual form. This assists the hearing parents and instructors to sign in the same syntactic order as they simultaneously speak the language of English, and they avoid learning an entirely new language, ASL (Golden-Meadow & Mayberry, 2001; Marschark & Spencer, 2003). Many of the signs used are taken from American Sign Language (Russell, 2007), however, when used, it is assumed that the goal is for the children to acquire English as a first and native language (L1) (Golden-Meadow & Mayberry, 2001; Marschark & Spencer, 2003). In the educational system, MCE, if offered, generally falls under the umbrella of Total Communication as a communication mode used in the classroom (Russell, 2007; Schools and Programs in United States, 2011).

**Pidgin Signed English (PSE)**

Often referred to as ‘contact signing’ due to its relationship to the majority language, English. It is this contact between the two languages that allows individuals to acquire attributes of both languages. For example, hearing children of deaf adults (CODAs) will develop a unique system of signing that may include fingerspelling, ASL non-manual signs, and use of space, while maintaining English word order, or syntax. Further evidence of this unique system might manifest itself by dropping determiners (e.g., a, the, an) in their writing (Valli et al., 2006).

**Total Communication**

This signed system makes use of any combination of several modes of communication including speechreading, audition, print, visual aids, as well as signs, depending on the particular needs of the child. It should be noted that there are two
distinct differences regarding how sign is used in this system versus ASL. When signing, speech and sign are used simultaneously, and the signs used are taken from the ASL lexicon but used in English word order. By using signs from a signed language to represent the structure of a spoken language, it has the unfortunate consequence of stripping the grammatical and syntactical functions from ASL system of language (Paul, 2001).

Two-way Bilingual Program

This type of program is one in which the goal is one of maintenance rather than inclusion. Through curriculum objectives, it is aimed at equipping students to acclimate in a world of two languages and two cultures with proficient skills for both languages and groups (Marschark & Spencer, 2003).
CHAPTER II

REVIEW OF LITERATURE

In 1990, during a parent-teacher meeting at the California School for the Deaf, Fremont, the statement was made that hearing parents should not be allowed to raise their HI children (S. Compton, personal communication, February 25, 2011). In fact, it was commented that the children should be removed from the home because hearing parents are unfit as they are unable to provide their children with an adequate language environment. This incident was revealed to me during an interview with an Education Specialist. She also was the recipient of those remarks. She was and is a specialist for the deaf, and is a hearing parent of a profoundly deaf child, now grown. Paul (2001) validates Compton’s experience while demonstrating the politics of deaf education, reflecting the sentiments of many in deaf communities, and advocating ASL as a first language. Consider the possibility that denying a child language, a signed communication system, also denies them “the right to grow up as a productive, healthy, contributing member of society” (Paul, 2001, p. 3). Further, parents ought to be held responsible, if not criminally liable, for the psychological damage caused by abnegating to acquire and use a natural language for and with their deaf or HI child today in the United States. Put another way, failing to give a HI infant a first language, ASL, is considered denying the deaf child the basic right of access to language. Without access to a communication system, the lack of
language can cause irreversible damage cognitively, emotionally, and socially (Paul, 2001).

Why such a strong stance? Although hearing parents are usually well intentioned, the problems can be severe. The overwhelming majority of deaf and HI children are born into oral-speaking homes of the majority language with hearing parents who are often, yet unintentionally, blinded by their own hearing ability (Paul, 2001). The oral/aural modal of hearing people is so taken for granted that it creates a naiveté regarding the importance of language. Further, the birth of the HI infant to hearing parents creates a pairing of different hearing statuses within the same household, a rare situation where neither parent nor child share a common language from birth. It is within this foundational environment, the natural context of the home, where the development of an infant lies, and it can dictate a child’s future socially, educationally, and occupationally.

A substantial amount of the thesis content is intended to address a monolingual hearing couple who have a functionally deaf infant determined by either the failure of the newborn hearing screening test at birth or later through an audiologic evaluation.

Hearing impaired is the politically correct term to use when referring to individuals who are deaf or hard of hearing. For the remainder of this paper, the deaf or hard of hearing will be referred to as hearing impaired (HI). What does it mean to be HI? When making reference to any individual with a hearing impairment, that can mean anything from profound deafness (no ability to perceive any frequencies of sound) to a mild hearing loss. Obviously, the term ‘HI’ is a rather loose description since it is applied
to a wide range of communication disorders ranging from profoundly deaf infants at birth to an adult who is hard of hearing. In her article, Flexer (n.d.) makes use of the adverb ‘functionally’ in reference to those who are hard of hearing and deaf to give added clarity to the definition of these terms. Parents who find themselves in this situation may or may not choose to augment the infant’s hearing with hearing aids, or as time passes, the decision to augment with cochlear implants may be decided, depending on the severity of the hearing impairment. It is possible that even with the augmentation of hearing aids and/or cochlear implants the child will still be classified as functionally hard of hearing. As an added concern for those who augment with hearing aids, there is always the risk of progressive hearing loss in infants as they grow. Therefore, it is in the best interest of the family and the child that all family members pursue sign language to aid communication and language development.

This brings us to the issue of the language experience in the home. It should be noted that from a literacy perspective, whatever the home language experience is, it will impact the school literacy experience (Kucer, 2009). For this variable, the author continues to address the hearing parent giving birth to a HI infant. How equipped are the parents to help their infant? Will they pursue learning ASL with the desire to reach, at least, Level 1 and/or 2 in an effort to provide a richer language experience for their child? Beyond the home experience, what services or bilingual programs are available to foster and continue the ASL-English language for the HI child? How do the services or programs complement or conflict with the home language experience? Or, will language development be placed on the back burner of priorities due to overwhelmed or inadequately informed parents?
Provided hearing parents decide to pursue ASL as a second language to help their HI infant, the language dynamic or linguistic dilemma is constructed of multiple levels or stages of language acquisition occurring simultaneously within the same household. On one level, there are the hearing parents who are fluent with a well-established native spoken language of English (L₁) and the need and/or desire to acquire a second visual language (L₂). On another level, the infant, at birth with no language and considered prelinguistic up until the time his or her first words are produced is in dire need of a first spoken or visual language (L₁). Once language production commences, s/he progresses into the emergent stage. A child’s first words, spoken or signed, approximate the beginning of linguistic development normally occurring around a child’s first birthday (Crystal, 1997).

For the sake of clarity, it is important to distinguish between the different levels of acquisition occurring within a family with this dilemma by identifying the stages of development. Even though not everyone in the field has adopted them, Lamendella (1977) uses the terms “primary language acquisition, secondary language acquisition, and foreign language learning” (p. 155). Primary language acquisition relates to the conventional language learning development taking place up to the age of approximately 5 years no matter how many languages are involved or the manner in which they are first presented to the child. Secondary language acquisition relates to the act of learning two or more languages in a naturalistic setting after the primary period of age 5 years. And finally, foreign language learning is defined as what transpires in a formal classroom setting (Paul, 2001).
If we apply these terms to the aforementioned family of mixed modals, the primary language acquisition would apply to the prelinguistic, hearing-impaired infant with exposure and use of ASL introduced by the parents as an infant’s first language (L1). At the same time, the infant will have some exposure to spoken English perhaps with the aid of augmented hearing, since parents are hearing and will most likely speak their home or native language (L1) for both incidental use and while signing to the infant. Depending on the level of hearing loss, the auditory curve of the infant’s audiogram after augmentation, and how successful the parents are at learning and applying a visual second language will determine how language enriched or impoverished a child will be in either ASL (L1) and/or English (L2). Paul (2001) refers to this as bilingualism since there is simultaneous “presence of two languages before the age of 2” (p. 433). The parents, in this instance, with a well-established spoken language of English (L1) will most likely seek foreign language instruction of ASL (L2) in a formal classroom setting. It should be noted that they will be applying their knowledge at home in a naturalistic setting. As their knowledge, exposure, and expertise in ASL (L2) increases, it could be argued that by definition secondary language acquisition is applicable.

The learning curve for any child during the first five years is steep in preparation for a more formal instructional setting, the academic classroom. This is not to imply that the less structured home environment is any less of an educational setting for a child. With parents and other family members as early educators, we can apply the various theories and aspects of language acquisition, as well as theoretical models intended for classroom instruction for bilinguals to the first five years of a child’s early education, the home language experience.
Language Acquisition Theory

Entire lives and careers have been devoted to the topic of language acquisition. It is this unique ability that separates humans from other animal kingdoms. Depending from which field of study ‘language acquisition’ is approached (e.g., linguistic, psychological), there are a multitude of hypotheses, theories, and factors that address the still raging debate as to exactly ‘how’ language is acquired and which assumption is true or carries more weight. Language acquisition is a complex issue and will not be completely dissected for the reader in this paper. However, this author will attempt to give the reader some insight into language acquisition that influences ‘the how’ of language development. Some of the major theoretical orientations in the field of language acquisition are linguistic, cognitive, and sociocultural.

A few cautionary notes are warranted. First, language acquisition is not equivalent to language learning. Language learning refers to education and the methodologies of language instruction within the field of teaching. Secondly, a theory is just that, a theory, and generally, it comes from only one perspective. And, finally, much of the language acquisition theory and research has been founded on the premise of a hearing population. While much can be gleaned from this base of knowledge, not all theory runs parallel to the hearing majority and the deaf minority and is, therefore, not always a perfect fit (Paul, 2001).

Linguistic

Most language acquisition specialists come from one of two fields, either linguistics or child language researchers, often referred to as psycholinguists. Language
acquisition generally begins with the linguistic theory of competence and concentrates on the problems of acquisition, or performance (Paul, 2001).

Simply stated, Chomsky’s hypothesized theory, often referred to as ‘universal grammar,’ explains the competence model unique only to man as “an innate, language-specific, mechanism, [referred to as] a language acquisition device” (LAD) (Harris, 1992, p. 6). When born, the device is activated and with minimal linguistic exposure, will implicitly lead a child to ‘take-in’ and process the rules and features of language in order to utilize it for purposes of communication (Zwiers, 2008). According to Shrum and Glisan (2005), the competence model, taken from Chomsky’s theory, refers to the instinctual ability of humans to apply abstract grammatical and syntactic rules demonstrating an inherent understanding of how the system of a language functions. In short, the theory of the competence model accounts for our unconscious ability to discern between a grammatical and an ungrammatical sentence beginning at a very young age.

As far as Chomsky is concerned, performance, the ability to produce language, is merely evidence of competence (Whitehead, 2004). It is important to clarify that exposure to the environment merely prompts the innate mechanism into action but does not shape it (Paul, 2001). Chomsky’s theory is an oversimplification and is void of any social influence or the part it plays in language acquisition and the mind (Whitehead, 2004).

Not without his critics, Chomsky, nonetheless, has been considered the father of modern linguistics from WWII to present (Fox, 1998). He is credited with shaping and influencing the field of linguistic theory, thereby, paving the way for future theorist to build and expand on his theories.
Expanding on Chomsky’s research, Krashen (1981, 1982, 1985, as cited by Paul, 2001) developed a theory referred to as the Monitor Model, a framework for understanding the process by which adults acquire a second language. This is pertinent to a family with mixed modals (hearing parents and HI infant) because Krashen’s model focuses on acquisition in a “natural noninstructional setting” (Paul, 2001, p. 446), equivalent to the home environment for the HI infant. This theory will help in understanding how the hearing parents as foreign language learners acquire ASL as an L2, and how the HI infant acquires L1/ L2 (e.g., ASL and/or English simultaneously in school or home). Krashen’s theory includes five hypotheses:

1. The acquisition-learning hypothesis distinguishes between acquisition and learning. Acquisition leads to fluency of a language while learning deals much more with the rules of a language.

2. The natural-order hypothesis claims that language rules are acquired in predictable order.

3. The monitor hypothesis is a type of built-in error detection device that scans utterances for accuracy in order to make corrections.

4. The input hypothesis claims that when input is just slightly beyond the second language learner’s level of linguistic competence (i + 1), otherwise known as comprehensible input in the target language, this innate mechanism operates and allows for language competence. In other words, language is acquired in only one way, by comprehending messages.

5. The affective filter hypothesis describes the mental and emotional blocks that can prevent those acquiring language from fully comprehending input. In short, “people
acquire second language structures in a predictable order only if they obtain comprehensible input and if their affective filters are low enough to allow input into the system” (Krashen, 1984, pp. 56-62).

Interactionism

The term ‘interactionism’ refers to the reciprocal relationship between two or more factors influencing language acquisition “that are critical for the development of an individual” (Paul, 2001, p. 104) such as cognitive, linguistic, and/or social. Interaction is another theoretical orientation to consider that approaches language acquisition from a perspective of competence and performance with influential cognitive and social factors (Paul, 2001). According to Hamers (1996), an individual from a linguistic minority group is also a member of a minority social structure. This social membership cannot help but influence minority language development. Therefore, one cannot single out cognition without considering the specific experiences a child encounters within a particular ethnolinguistic group and its impact on linguistic development. The early social and psychological environment to which any child is exposed not only impacts language development but also contributes to the end result of bilingualism during childhood (Hamers, 1996). The rare circumstance of the HI child born into the home of a hearing culture must be examined more closely. The functionally deaf infant’s entry into the world and its social interactions is largely dependent on the actions of the immediate hearing family members. Unless the hearing parents have a depth of understanding regarding language and the importance of linguistic input (visual and/or oral) at an early age, a HI child could begin with severely impoverished mode(s) of communication, thereby “contributing to poor cognitive development” (Hamers, 1996, pp. 52-53).
Cognitive-Interactionists

Cognitive-interactionists, largely influenced by Piaget, disagree with the nativist beliefs described by Chomsky, which is that man is born with some type of innate ability. Rather, they acknowledge, yet recognize the distinction between competence and performance with emphasis placed on the performance data generated by children as beneficial insight into language acquisition. Additionally, Paul (2001) points out that cognitive-interactionists credit cognitive processes as analogous for both children’s linguistic competence and performance. Or, restated, language development and its growth are directly related to the cognitive growth of the individual. Whitehead (2004), on the other hand, points out that there is a cognitive maturation that must take place before language development can transpire.

Cummins’ (1984) threshold hypothesis states that it is important to achieve proficient levels in both L₁ and L₂ if children are to acquire both linguistic and cognitive growth. In short, it is important to achieve and maintain at least a proficient level in one of the languages (Lₓ) and partial attainment in a second language (Lᵧ) in an effort to prevent adverse academic outcomes often referred to as subtractive bilingualism. Further, it is equally, if not more important, that proficiency of the second language is achieved to reap linguistic and cognitive benefits of bilingualism, often referred to as additive bilingualism (Diaz-Rico & Weed, 2002). The faster the family of mixed modals can acquire and/or approach proficiency in learning and applying ASL (L₂ for parents/ L₁ for infant) within the home, the greater the cognitive advantages for the HI child. According to Hamers (1996), the ability of the bilingual child to manipulated and analyze the semantic features of two symbolic systems is the very definition of cognitive advantage.
The ability to process two languages is more mentally taxing and requires additional concept formation.

Within a family of mixed modals (hearing adults and HI infant), the circumstances and age differ under which language is acquired. The hearing parents are non-native signers, acquiring sign in an unnatural setting (e.g., formal classroom) after childhood or as a foreign language-L2 (Mayberry & Fischer, 1989). Their infant will be considered native; acquiring the same language (ASL) as a first language (L1) and possibly some measure of simultaneous exposure to English from birth (Mayberry & Fischer, 1989). How does the age discrepancy between the parents and infant impact the success of acquisition and/or cognition of each? Ideally, although they may not be able to attain linguistic perfection, there is a necessity for the parents to learn ASL with enough proficiency to communicate and preferably before the infant enters the formal classroom instruction and surpasses them. The latter is assuming sign is a part of the educational services and programs offered. The question of age discrepancy makes examination of the critical period hypothesis (CPH) necessary. There is little debate regarding the fact that the CPH is valid especially where L1 is concerned (Pallier, 2007). In fact, Pallier (2007) suggests that the negative effects of delaying L1 far out weight that of delaying L2. It is the specifics of when and how this is so that is often contested since CPH is not easily discernable (Mayberry & Lock, 2003).

According to Hagen (2008), “L1 and L2 acquisition are the consequences of our evolutionary history” (p. 43). There is evidence through evolutionary theory that learning a second language later in life is far more difficult than a first language from birth. Hagen (2008) purports that the process of natural selection for humans has made it
easier to learn a first language (L₁) and disallowed the propagation of second language acquisition after a certain age.

Pallier (2007) points out that the CPH is generally applied within two contexts. The first is referred to regarding language proficiency given the age of an individual during language acquisition. The second is referred to when discussing decreased neural plasticity of the brain and the age of the individual during language acquisition. On the latter, it is suggested that age may be the causation of decreased neural plasticity, but equally as plausible is the theory that loss of plasticity is that which is spent from the established space required for and permanent mapping of L₁ acquisition. Each of these theories need not be contentious. In fact, Pallier (2007) suggest that both theories could be compatible and in operation during a child’s development. Pallier (2007), after reviewing various studies and experiments, supports the view that neural modifications are reversible and, for language, remain highly plastic in the first 10 years of life. This finding would benefit the infant in learning a L₁ either at home in a natural environment or as a late learner upon entering school with signed services/program (e.g., ASL-English bilingual; Total Communication). Applicable to the hearing parent, Pallier (2007) points to the “exercise hypothesis” (pp. 156-157) where maintenance of a well established L₁ makes one capable of acquiring a new language (L₂), in this case ASL.

Language acquisition and processing pertain to the perisylvian region of the brain’s left hemisphere. Lenneberg (Lenneberg, 1964, 1984, as cited in Hagen, 2008) is responsible for the discovery of the age constraints in the human brain to optimally prepare for language acquisition through studies performed on children who suffered from left-hemisphere brain injury. Those who acquired childhood aphasia between the
ages of infancy through adolescence had a rate of recovery from 75% to 100%. Adults, on the other hand, who suffered from the same left-hemisphere injuries, were far less likely to recover; the results were no more than 20% to 50% (Hagen, 2008, p. 45).

Hagen’s (2008) summation of this study regarding second language acquisition and the critical period is notable. He states, “children will universally become native speakers of a language so long as they are exposed to a linguistically rich environment. . . . As one approaches adolescence, the acquisition of native-like fluency becomes increasingly problematic” (p. 45). Pallier (2007), on the other hand, feels that the onset of the ability to acquire proficiency in L2 begins to gradually decline at an early age, long before puberty, yet has a slightly more positive stance regarding late-learners attempting to acquire a second language.

According to Hamers (1996), there seems to be little discrepancy between the two modes of oral-articulated and visual-manual regarding language processing. While the processing might not differ, the neural organization of the brain may differ when processing a visual-spatial language such as ASL over that of an aural-oral language. One study conducted by Newman, Bavelier, Corina, Jezzard, and Neville (2001), supports two well-established views regarding language acquisition. The first is left hemisphere (LH) activation of the brain during the processing of language, either L₁ or L₂. And, the second is that of the critical period hypothesis. However, Newman et al. point out that when the two languages being acquired have differing modalities, such as that of an aural-oral language versus a visual-manual language, it is the visual-manual language being viewed by the native learners of ASL that show LH and some recruitment of right hemisphere (RH) activation. Monolingual native speakers of English who do not know ASL, on the
other hand, only display LH activation and no RH activation. Newman et al.’s research further suggests that any RH activity for those learning ASL after puberty, the critical period, is diminished or ceases to exist. The conclusion is that those who are native bilinguals with languages of different modalities versus those who attempt to become bilingual later in life with the same two languages of differing modalities will have a more difficult time acquiring the visual-spatial language, ASL, due to the lack of plasticity in the RH of the brain. In a research article by Bongaerts (2005), he cites Long’s (1990) review of the literature on the CPH fifteen years later in which he remains consistent with his earlier position and maintains,

in terms of absolute language learning capacity, only young child starters can (not necessarily will) attain native-like proficiency levels (pp. 263-264) . . . native-like phonological abilities in a SL begins to decline by age 6 in many individuals and to be beyond anyone beginning later than age 12, no matter how motivated they might be. . . . Native like morphology and syntax only seems to be possible for those beginning before age 15. (p. 259)

The CPH is not without its critics. Many researchers have found discrepancies that “native likeness for late learners” is attainable but not across all domains. Nonetheless, there is a question whether it is necessary to attain a level of native-like proficiency to be of use to an individual, especially hearing parents who are working against time to obtain a second language to benefit their (HI) infant. In Bongarert’s paper (2005), he confirms the findings of Hagen (2008) and Newman et al. (2001) regarding “changes in the neuronal structure of the brain” (p. 263) as a contributor to the inability to be native-likeness. However, through further neuroimaging, there seems to be room for dispute over the where and when various processes take place.
Pallier (2007) is quick to point out that a person should not avoid learning a second language (L₂) just because they might be beyond their prime. It is indisputable that learning a second language earlier is better for native-like attainment than learning it later. He encourages those to ignore the statistical claims and bear in mind that individual variables are big factors when learning a second language. Some of those other factors, such as language exposure, typological distance of two languages, social-psychological orientation or motivation need not be ignored regarding the family with mixed modals (Bongaerts, 2005). At the very least, one can infer from the research that even with adequate exposure the hearing parents learning a second language (e.g., ASL/L₂) will be more challenged to attain proficiency than that of their HI infant.

Social-Interactionist

This theory suggests that the child’s social environment, particularly that of an infant, facilitates and shapes the language-learning process. Whitehead (2004) points out the social-interactionist places greater emphasis on the social interactions of the parent-child relationship and its impact on infant learning, as well as concentration on the uses of languages, or pragmatics. Although it is still driven by rule-governed structures of linguistics, the social interactionist perspective tends to look at the larger picture of the various contexts in which language is used. In other words, it takes into consideration the social situation and the interaction of language between two or more people. Social-interactionists believe that “the input of significant others triggers the innate mechanism of linguistic structures” (Paul, 2001, p. 110). In Paul’s view (2001), no matter the approach in the academic field, both competence and performance are believed to be important and neither should be omitted when examining language acquisition models.
Vygotsky, a Russian psychologist whose work spanned a brief ten years at the turn of the 20th century, is credited with the Zone of Proximal Development and its contribution to the educational classroom. Its social construct recognized the importance of the student-teacher relationship as a collaborative one and helped influence classroom instruction. His theory argues that humans generate knowledge and meaning from linguistic interchanges with others within a cultural context. And, in fact, these social interactions with others are necessary for cognitive growth (Subban, 2006). According to Vygotsky, the roles that linguistic interchange play between environment, significant others (e.g., family members, particularly parents), and a child contribute to the early development of children’s language acquisition (Diaz-Rico & Weed, 2002). Since the first contact children have is the family unit in which they are born, they are dependent on this social context for the foundation of their language. The family unit is one social context within a much larger social context, society and its culture. Historically, in the majority of most U.S. households, the mother is the predominate nurturer. This places the pressure of the overall development of the child squarely on the shoulders of the mother or immediate caregiver. It is this person who has the most immediate and most intimate relationship with the child from birth and who will establish the overall tone and direction of the child’s future. Whereas language acquisition may be a separate developmental process from that of cognition, Vygotsky’s “notion of inner speech (e.g., symbolic speech), in which thinking dominates or regulates language processes,” (Paul, 2001, p. 106) supports the theory that growth of language depends on cognition.

It is important to note that the HI has a unique relationship with English. Since many HI have diminished or non-existent aural input and do not speak or speak with
sufficient intelligibility, it is possible that their primary encounter with English will be through the necessity to read and write. Their contact with English and the context of its use (e.g., home, classroom, work) will form the HI’s knowledge of English (Padden, 1996).

It is the family with mixed modals of communication that places a greater demand on the HI child from birth and his/her relationship to English, which is in sharp contrast to the family dynamics of deaf parents with deaf children. The motivation and success of hearing parents to learn ASL (L₂) will determine and display the parent’s positive or negative attitude and value toward the infant’s L₁. Likewise, the family’s willingness to expose their HI infant to both the HI and hearing communities will demonstrate to the child the importance and value the hearing parents place on the HI child and her/his unique linguistic situation. Even with the decision to augment the infant with cochlear implants or hearing aids at an early age, the family will never be able to escape the fact that the child will remain HI for life with English as their non-native language. Augmentation does not always erase the need for a visual sign system, ASL (L₁), or how the child may relate differently to the English language (L₂).

The relationship with the English language is not the same for a linguistic minority as it is with a native of that same language. The dominant language of any culture makes it more economically and culturally favored, therefore, prestigious. The more the parents embrace the ASL language, the more it will complement the infant’s learning and the less it will threaten to undermine the child emotionally, socially, cognitively, and academically.
Once again, this author has taken the liberty of applying academic theory to the social construct of the family unit. Lambert (1974, 1977, as cited in Hamers, 1996) was the first to purport that bilingualism was founded in the roots of social psychology and child development, particularly when it comes to how prestigious one regards both languages. Like Cummins, Hamers (1996) echoes the same beliefs where the ideal bilingual conditions will generate positive cognitive processes and adverse sociocultural conditions will generate the negative outcome of less than likely survival of the native language (L1) and culture, as well as alter cognitive growth. The Social-Cognitive Interaction Model, often applied to heritage language learners, also applies to any family with mixed modals.

In order for a child to benefit from an early bilingual experience: (1) the two languages have to be used and valorized by relevant others in the child’s social network; (2) the functions that language serves have to be fully developed . . . (3) the child must develop a positive social representation of the language functions in general and in both his/her languages. (Hamers, 1996, p. 64)

Modality and Language Acquisition

When we hear the words ‘language acquisition’, it is usually assumed that this is made in reference to someone acquiring a native spoken language (L1) and/or learning a new or second spoken language (L2). In either case, it is also assumed that the receptive input is via the oral/aural modality. The word ‘modality’ is defined in this thesis as “a faculty or sense, such as sight, hearing, etc.; a category of sensory perception” (“Modality,” 2011). What happens when an infant is born with the aural modal absent or negligible? Without the modal of hearing, the receptive input for an individual is no longer sound or speech. In its place, a visual input, such as ASL, is the principle source of
input and/or communication. The question then becomes, how do different modalities effect language acquisition? How does the acquisition of ASL differ from that of any other spoken language?

It should be made clear that the word ‘sign’ does not always equal ASL. ASL is the accepted sign language for Canada and the United States and is unique due to its system of delivery (Ritchie & Bhatia, 1999). It is seldom used in other countries. Every country has its own version of sign language; each of these is different, making it difficult to effectively communicate across borders. Although there are other signed systems practiced in the United States and Canada, ASL is the only signed system, recognized as a language. Those signed systems other than ASL are artificial pedagogical systems or variations of sign, some of which were invented for educational purposes. Some systems synthesize English syntax and/or morphemes blended with ASL manual signs. These systems are often referred to as manually coded English (MCE) or pigeon signed English (PSE) (Marschark & Spencer, 2003). However, these other systems are not to be mistaken as languages. Because these other systems are based on the majority language of English, they are only modifications or substitutions for the natural language of ASL.

Although the term ‘sign’ is used loosely, one must realize how it is used in context in order to differentiate whether it is referring to ASL or other signing systems to correctly interpret the meaning. Sign is not always synonymous with ASL. Because ASL is considered a natural language with its own formal linguistic system, it is not English in manual form, which is another misconception that needs to be understood (Ritchie & Bhatia, 1999).
There are varied opinions regarding the question of differing modalities and the effects they may or may not have on language acquisition. This issue will be addressed on the premise that one set of parents and their offspring are both functionally deaf and the parents are fluent in ASL, while the opposing set of parents and offspring are both hearing. This author will later address the various issues that occur when a family is of mixed modalities with hearing parents and HI infants. When HI parents fluent in ASL welcome a new HI child into their lives, it is a given that the child will consistently receive input of visual language from day one. Ritchie and Bhatia (1999) cite a comprehensive report that states, “A synoptic perspective on acquisition in the two language modalities reveals that children acquire sign and speech in much the same fashion and on much the same schedule” (p. 533). To support this claim, Ritchie and Bhatia examine and compare manual babbling, first signs, pointing as early pronouns, early lexical development, and the development of verbal morphology between the growth of a HI infant and that of a hearing infant. There is some debate as to when a gesture constitutes being a word, when pointing is the equivalent of the linguistic unit of a pronoun, and if the iconicity of ASL aids a child in early acquisition. However, the overall consensus of studies done concur on the initial first stages of language acquisition.

Just as hearing infants babble orally, HI infants babble manually only by a greater degree of output. Both groups babble at approximately the same age of 10 months. The babble of both hearing and HI infants does not represent any particular language. However, there is a bigger picture of greater significance that needs to be addressed. Ritchie and Bhatia (1999) strongly claim that the preparation for
communication via the ability to babble, whether it is through manual babble for the HI infant and oral babble of the hearing infant, is evidence that language does not always equal speech. Further, they view this strong desire to communicate regardless of the mode, as reinforcing the theory that there is a biological foundation for language present at birth in all humans (p. 540).

First words and first signs both emerge from early babble at approximately the same age, between 10-12 months. In fact, it appears that HI infants produce first signs before a hearing infant’s ability to produce first words due to the development of large and small motor skills of limbs over the “vocal apparatus . . . at least sufficient control to produce recognizable words” (Ritchie & Bhatia, 1999, p. 544). Harris, however, has a slightly different opinion on the speed of language acquisition due to the logistical issue of signing. Harris (1992) agrees that the results from studies of ASL development in children are comparable to the rate of development to those of children who speak orally. However, the logistical issue is one of the effectiveness of the HI parent’s strategies at obtaining visual attention of the infant when presenting manual language in reference to the context in which that language is being presented (Harris, 1992). Without the child’s attention, there will be a lack of comprehension since the child cannot draw a connection between the sign and context in which it is used. The final result will be less input, smaller vocabulary, diminished quantity of language experience, and most likely contribute to a slower linguistic growth while increasing the gap between the HI and their hearing peers (Harris, 1992).

The logistical issue Harris (1992) brings to the forefront does not detract from an implication of much greater importance. Regardless of what modality is used to
acquire manual or oral language, the comparable rates of emergent language from both the hearing and HI demonstrate one of the most significant milestones of an infant’s communication. The comparable rates further promote the theory that foundations linguistically and cognitively are in place and develop concurrently for the first lexical elements and imply that it is immaterial if the input is received visually or orally (Ritchie & Bhatia, 1999).

It is often argued that the iconicity of ASL is an advantage that explains the earlier acquisition and production of a HI infant’s sign over a hearing infant’s oral production. Ritchie and Bhatia (1999) disagree and support their response by stating that only one-third of an infant’s total ASL manual vocabulary is iconic. It is a weak argument. According to Ritchie and Bhatia (1999) “iconicity is irrelevant to the acquisition of the first words” (p. 544).

Language

It is presumptuous to assume that ASL is a part of the bilingual equation (e.g., L₁ + L₂), without first substantiating that ASL is, in fact, a ‘language’. Since the majority of the world’s population is hearing, it is taken for granted by the majority that ‘language’ must entail hearing and speech. What are the requirements necessary to establish that any language is, in fact, a credible language? Although more than one definition exists, the author has chosen to quote the Oxford English Dictionary for a definition of ‘language’:

(n) 1a. the system of spoken or written communication used by a particular country, people, community, etc., typically consisting of words used within a regular grammatical and syntactic structure. . . . 1c. a means of communicating other than by the use of words, as gesture, facial expression, etc.; non-verbal communication. (“Language,” 2011)
Valli et al. (2006) offer another definition of language:

Language is a rule-governed communication system. A communication system is a system that people use to communicate information to each other. When a system is based on rules that its users know and follow, it is called a rule-governed system. (p. 1)

By each of these definitions, ASL, although not written or spoken, as a manual/visual language form, qualifies as a credible language by fulfilling the criteria of being ruled-governed with its own grammatical and syntactic structure. For more information about the structure of ASL, see Valli, Lucas, and Mulrooney (2006).

Bilingualism Established

How is bilingualism defined? The answer to this is similar to defining language. It is not a simple answer and depends on who you ask. Ritchie and Bhatia (1999) offer this, “the working definition of bilingualism . . . is the native-like control of two languages” (p. 571).

A little historical background should help to put the status of ASL as a language in perspective. Like any minority throughout history, the deaf have experienced much bigotry and moments of great tolerance. The establishment of formal educational institutions for the deaf ran roughly from 1760 to 1880. During that period, the deaf generally enjoyed a period of academic and linguistic acceptance and respect worldwide. This acceptance in the United States was due in part to the high ratio of deaf teachers to hearing teachers in the classroom (Parasnis, 1996). Although not deaf himself, Gallaudet ensures that oralism will not be the only method of instruction when he returns to the United States from France in 1817 and gives birth to the first formal school for the deaf and establishing what we know today as ASL. As the momentum of ASL grew, so did the
financial appetite for additional funding to support more HI school and clubs. Impending, however, were several societal and political events that would shape the pejorative future of ASL for many years and make it increasingly difficult for leaders of the deaf community to appeal to the monetary power of those in control, the hearing majority. The contributors to this shift were the industrial revolution and the principles of Darwinism applied to social and political policies. At the height of the industrial revolution, inventor Graham Bell’s keen interest in inventing a solution to solve his mother and later his wife’s deafness gives birth to a new form of communication, the telephone. Compatible with the ideology of social Darwinism was Bell’s strong belief in the doctrine of oralism. Prominent and influential, he follows the tide that fuels the belief of suppressing sign and teaching speech to the deaf. All of these events coalesced in 1880 when the International Congress on Education of the Deaf assembled in Milan, Italy. With little or no representation of the HI, the hearing majority decided that signing was to be banished from classrooms worldwide. With the tally of the votes and a single swing of a gavel, there was an immediate paradigm shift and the lives of the HI were changed for many years to come. This decision led to literally tying HI children’s hands, their speech, behind their backs and forcing oral speech. Thirty U.S. states had laws on the books to sterilize or castrate HI people, and HI marriages were discouraged, if not abolished. Teachers who knew and used sign in the classroom were replaced by what is termed the ‘medical model’. A whole new industry was born. Audiologists, psychologists, speech therapists, and special education classes were established to accommodate the deaf (Marschark & Spencer, 2003). Removing signing teachers from the classroom begins the erosion of leadership and influence in the deaf community. Maintenance of the language
languished. It was during this time of great oppression and discrimination that the deaf culture and language survived due in part to deaf children stealthily teaching each other on hearing playgrounds or between the deaf in residential schools and gatherings (Tabak, 2006). The status of HI students changed, and they were viewed and labeled as handicapped. The HI community and its citizens suffered irreparable damage psychologically and socially with their public image forever labeled and changed.

After many years of these policies, it became apparent that oralism was a failure when illiteracy rates for the HI began to climb and remained high. The continual decline of literacy rates coupled with the social revolution of the 1960s gave political impetus to the passage of legislation in favor of bilingualism. Initially the legislation was nothing more than a symbolic gesture. However, it did begin the debate and encourage research regarding bilingual education. By drawing a parallel between signed and oral language, researchers were able to establish that ASL qualified as a natural language with a rich autonomous linguistic system (Hamers, 1996). The recognition of ASL in the latter part of the twentieth century as a true language has allowed the HI community to capitalize on this shift in policy and paved the way for the status of bilingualism when acquiring a second language (e.g., any L₂).

With the onslaught of legislation and research, there has been growing acceptance of ASL as a language. Two-way bilingual program allow language minority students to be language-empowered rather than language disabled. It was the equal treatment of the two languages in this type of program that was needed for the deaf community to disassociate themselves from special education and lean more towards the association of bilingual education (Hakuta & Mostafapour, 1996).
Today you will find bilingual ASL and English classes conducted in different educational settings meeting different educational purposes. The legislation has not only mandated bilingual programs for the hearing impaired but, through gradual social acceptance, encouraged ASL to be offered as a second language to the public through high school, colleges and community enrichment classes. This same legislation, along with the Individual with Disabilities Educational Act (IDEA) has mandated that bilingual ASL and English instruction be one of several modes of communication offered to the deaf and HI under the auspices of special education (Doctors, 2007; Schools and Programs in United States, 2011). It is this last point with which the deaf community takes issue. It is the placement of this instruction that implies a disability. It is precisely the image of disabled and the stereotyping that accompanies the title, special education, that is counter to how the deaf perceive themselves or wish to be perceived by others (Parasnis, 1996). Nonetheless, progress has been made. Legislation has contributed to a shift in the thinking of the hearing majority’s view and how they address the deaf. The change in the vernacular has replaced the term ‘deaf’ with the more politically correct term ‘HI’.

Bilingualism is an important point in this thesis because 90% of the HI babies are born to hearing parents. The incompatibility in language modalities created when hearing parents give birth to HI infants suggest that bilingualism will apply to these families by varying degrees dependent on several factors: the linguistic decision of the hearing parents to learn ASL, the parents’ commitment to develop some level of proficiency in the language, and the amount of the child’s hearing loss paired with what
type and how much augmentation s/he will receive. The latter will determine how much spoken English the child will develop.

**Literacy**

The linguistic majority of a society decides the definition of literacy. This definition applies to everyone, including the HI. But, what does it mean to be literate? It is important to understand why the word literacy entails more than just reading and writing and why it is difficult to commit to a singular definition. This author will introduce a pluralistic definition of literacy by Street (1984) that will help to address the smaller picture of the parent-child dynamics and the larger picture of political and educational policies decided for all of society. Due to the ever-changing values, trends, and needs of society, this author will attempt to demonstrate the need for the pluralistic definition of literacy due to its more fluid and adaptable nature. Since a pluralistic view is not the only lens with which literacy is examined, insight into other views, for example the quantitative and qualitative views will be provided.

Most parents are unaware that there are a plethora of definitions of literacy generated by scholars, policy makers, and educational practitioners, each with their own agenda. More often than not, “literacy program planning” objectives are designed to generate a “rate of literacy” [that indicates the overall] “general health of society” (Roberts, 1995, p. 417). The financial stakes are enormous for there are more than individual political careers on the line. International reputations are also involved for competing monies that fund the majority rule policies of the time, making the competition a political one.
A brief overview follows for the three approaches to defining literacy, as well as the rationale for why it is difficult to reach a consensus for a definition. It should be noted that each of these approaches has its pros and cons, dependent on why it is selected and how it is used in educational settings.

Quantitative

The quantitative approach to defining literacy by human capital theorists, economists and manpower planners attempt to establish a benchmark by identifying an exact point of either reading ages or by years of schooling. This fixed benchmark is applied beyond our domestic borders when used to compare literacy levels between Third World and First World countries (Roberts, 1995). Today, this is still the preferred approach to defining literacy. The U.S. Bureau of Census uses a calculation for functionally literate as five years or more of schooling if an individual is fourteen years or older (Roberts, 1995). Our children’s literacy and academic standing is defined and judged by the scores generated from standardized tests.

Qualitative

The qualitative approach to literacy concentrates on describing the features or dimensions of literacy and the literate person in a more general way. This is a shift away from a strict number and instead focuses on the qualities of being literate (Roberts, 1995). The danger in using a strict qualitative definition of literacy is (1) it is prescriptive in nature, (2) anyone with credentials can conjure up an “ideal model of literacy or the literate person” (p. 419) defining, in their view, how people ought to read and write, and (3) it is without a sound definition, which can allow everything and anything to be called into question (Roberts, 1995). Due to the dilemma of how much and where competing
funds should be distributed, policy makers have a strong propensity for definitive numbers in order to compare countries’ literacy rates and student scores on standardized tests. Since the qualitative approach does not offer this feature, it can be too subjective and can create dangerous pitfalls.

**Pluralist**

The final approach, the pluralist approach, is less about literacy in terms of reading and writing, but rather about literacy as practiced, taking into consideration the fluctuating environment, social demands, and uses within a changing society. It is the aforementioned attributes of the pluralist approach that is its greatest strength. At this point, Street’s (1984) ideological model of literacy is offered as a definition:

‘Literacy’ as a short hand for social practices and conceptions of reading and writing. [Street] contends that what the particular practices and concepts of reading and writing are for a given society depends upon the context; that they are already embedded in an ideology and cannot be isolated. . . . what practices are taught and how they are imparted depends upon the nature of the social formation. (p. 1)

This author has briefly discussed how past and present political educational policies not only impact parents, children, and the HI but argues, based on Street’s (1984) ideological model, that it shapes their literacy. The parents are as much a product of the larger community of social practices and the context they are embedded in ideologically as that of society as a whole. In other words, parents’ literacy is a microcosm of society’s ideology, and we cannot be any more isolated from the practices we have been taught than the social formations that are so deeply entrenched in our linguistic culture. The parents, along with other hearing decision makers (e.g., hearing audiologists, hearing speech therapist, hearing doctors), decide the future of the HI child. Therefore, parents
tacitly pass on the acquired ideology and practices that have been dictated to and expected of them, automatically indoctrinating their children within the first 0-5 years.

It is of no fault of the hearing parents that they come from the same political and educational system that uses the same measurements that regard literacy as praiseworthy, even esteemed. It is worth mentioning that in today’s world, given the fact that most view the literate person with such high regard, that to be labeled illiterate can destroy one’s self-worth, undermine motivation, create social degradation, and persistently deficient standardized test scores (Roberts, 1995). It should also be noted that after the age of five the majority of the HI minority population will attend schools that will put them through the same academic paces (e.g., standardized testing/quantitative systems) as their hearing parents and their hearing peers, and will be judged and labeled according to their scores. The ideology that the educational system, or society as a whole, has adopted at that moment in time within the social context will impact the balance of the child’s academic career.

The parents are one of the major factors that influence and shape our HI children’s literacy. It is an understatement to say that there is a responsibility on the parent’s behalf to understand what exactly is meant by literacy for the sake of their hearing child. This responsibility becomes even greater if the child is born HI. Unless parents are able to deeply examine their own literacies and be intimately familiar with the political policies in place and their adjoining ideologies within the academic environment they will not be able to be their HI child’s most ardent advocate and will become a much less effective first teacher of language and literacy.
Depending on anti-immigrant disposition at any given time and how protectionistic a society is feeling about having an ‘English-only’ population, the political environment can change creating legislation to support a popular shift in ideology.

As previously demonstrated by the historical decisions made on behalf of deaf education at the Milan Conference and, again, during the social revolution of the 1960s, political or ideological environment can become sensitive and influence the literacy of the HI. The social and political paradigm shift also demonstrates Street’s ideological model of literacy and shows how the fluidity of a pluralistic definition lends itself to change within the social context of literacy over time. Decisions have often been made on the behalf of ‘literacy’ to the exclusion of the HI community, determining who is excluded and who is included.

It is safe to say that a HI individual can survive outside of an educational system where there is a larger population of deaf for support. However, where there is a small population of HI, a residential school system or clubs for the HI becomes central in maintaining a healthy deaf community. Therefore, “deaf education was, and continues to be, the battleground on which the community’s future existence and quality of life is contested” (Marschark & Spencer, 2003, p. 155).

Reading

Why do people read to their infant? What are their reasons and/or purpose? Why should they? What is gained? Before discussing reading theory and process, these questions need to be examined.
Speaking from personal experience, much of the time the author spent playing with and reading to her children was purely for selfish motives. It allowed quality enjoyable time with the children while revisiting, if only briefly, her own childhood. The purpose was never anything as lofty as expanding L₁ vocabulary or insuring that the linguistic gap between my child and his/her peers would close. The author was not cognizant that she was modeling for her children what her mother had done for her. Reading was purely social play with the children. It had not entered the consciousness that the social activities of reading and pretending were giving the child the advantage of early language development. There was an assumption on the author’s behalf that these same rituals and practices went on in all homes. The research, however, disputes this assumption.

An extensive study done over a period of two and a half years by Hart and Risley (2003) published the language experience results of children of 42 families from the ages of 7 months to 3 years and across different socioeconomic classes. They examined not only the quantity and quality of words heard within the home environment, but also the parenting style (affirmations given versus prohibitions). The numerical gap of words generated between the socioeconomic classes was staggering. In terms of the quantity of language exposure, the results found that in a 5,200 waking hour year, children in homes where the parents were professionals received 11.2 million words. A child from a working-class home received 6.5 million words, and a child living in poverty received 3.2 million words. In four years, the average child in a professional family had an accumulated experience in excess of 30 million more words than a child from the lowest socioeconomic group.
By the age of three, each child was mirroring the parents’ “amount of talk, vocabulary growth, and style of interaction” (Hart & Risley, 2003, p. 7). This information becomes much more salient as researchers continued to follow and examine the same group of children’s’ test performances in third grade (age 9 – 10). The data demonstrated that there was a positive correlation between the children’s linguistic rate of growth and their scores “on both the Peabody Picture Vocabulary Test-Revised (PPVT-R) of receptive vocabulary (r = .58), the Test of Language Development-2: Intermediate (TOLD) (r = .74), and its subtests (listening, speaking, semantics, syntax)” (Hart & Risley, 2003, p. 5). Thus, a child’s early language experience (i.e., quantity and quality of receptive input) is a strong predictor of later academic performance in school.

This author labors on this last point regarding the quantity of spoken receptive input and the results only because the minority HI child must be literate in the majority language in order to function in the hearing majority’s society. If quantity of receptive input is diminished and is a predictor of academic success of the hearing child’s future, then we can safely assume that a functionally deaf child, receiving considerably less input than the underprivileged hearing peer, will have an even more dismal academic future unless parents intervene early and heavily compensate for receptive input simultaneously for both L1 and L2.

For a hearing child of an educated, middle-class home, the parents can afford to be reading simply for enjoyment and not be conscious of the importance of the task at hand with their toddler, because it is a monolingual household. However, the hearing parents of a HI child need to perceive the urgency in reading and talking with their infant/toddler in large quantity and using sign, if the HI child is to be biliterate and
function successfully. The parents must be conscious and intentional about amplifying the amount of reading, talking, and signing required for their child’s social and academic success.

For the balance of the sections on Reading theory (Linguistic Dimensions, Process, and Bilingualism), this author will discuss both languages (English and ASL). Further, this author wants to dispel the notion that ASL is English in manual form, or that it is a collection of pictures in the air (iconic) with no grammatical structure. It is important to establish the fact that ASL is considered a ‘natural’ language with its own formal linguistic system in order to support the argument that reading English text to the HI, pre-emergent reader must be done from a bilingual approach. Briefly, there will be an examination of the similarities and differences of the two languages, English and ASL, and where they differ and where they agree, especially where the system of language is concerned.

Literacy is not a given. Just as hearing and speech do not guarantee a student’s reading acquisition, nor does the skill of signing guarantee the deaf the same ability to read (Goldin-Meadow & Mayberry, 2001). Reading must be taught. This fact is true for the hearing population and especially true for the HI who have no written language and wishes to function within the hearing majority’s society as well as their own. These linguistics details establish that this creates a bilingual/biliterate situation. Parents should be keenly aware of the following:

- Literacy begins at home. A parent is the child’s linguistic teacher for the first five years. How the parent establishes literacy practices within the home is critical.
Whether hearing parents chose to learn ASL as a second language is a decision that will need to be made. No decision is a decision. If parents decide not to learn ASL, they need to be aware that when reading to their child from popular children’s books, they will be introducing the majority language of their society as a first language depending on the child’s level of receptive ability. It is possible that even a mild to moderate level of hearing loss can diminish a child’s language input. If that is the case, then it is debatable that the child is obtaining enough language to qualify as a first language (any spoken language). Thus, the child could have an impoverished or non-existent first language. Not surprisingly, many hearing parents stop reading altogether to their child. If they decide to learn ASL, they are introducing English as a second language \((L_2)\), while simultaneously introducing ASL as a first language \((L_1)\).

It is difficult to say that the decisions parents might make in this situation are informed ones unless you have a better understanding of what language and literacy entail, as well as what is involved in the reading process.

Hearing parents are a product of the same system that will be educating their child. As a child, you would not have been aware of the policies and the political nuances affecting your education. That was your parent’s worry. If you were a hearing student, you had the added advantage of being a part of the ruling majority which allowed you to start on a level playing field with your peers. However, as an adult and a parent sending your HI child to school for the first time, you will view the educational institution through a much different lens. In order to be your child’s most ardent advocate, it will be necessary for you to be explicitly armed with the most current academic research, theories, and vernacular in order to discuss, support, and make
decisions on behalf of your child with teachers, administrators, and/or educational policy makers.

Linguistic Dimensions of Literacy

The four symbiotically related dimensions of literacy are cognitive, linguistic, sociocultural, and developmental. Together, the four dimensions take the printed symbols of a language through a complex process in order for an individual to make meaning of the text. Since the author has already addressed sociocultural influence in the Language Acquisition section of the thesis by examining Street’s (1984) construct of literacy, energy will be placed on the cognitive and linguistic dimensions. It is important to keep in mind that at the center of language, any language, is the simple fact that it is a meaning-based system of communication.

In an effort to make this a more manageable subject, this topic is divided into subtitles of internal/external coherence and the system of language. When possible, the differences between the English language and the language for the HI, ASL, are pointed out. First, the reader must be able to understand linguistics and conceptually understand how one acquires literacy in a native language (L1) before moving on to the discussion of linguistics and acquisition of reading in a second language (L2) or bilingualism and/or biliteracy.

According to the *Oxford English Dictionary*, “linguistic” is defined as: (a) *adj.* Of or pertaining to the knowledge or study of languages; of or pertaining to language or languages (“Linguistic,” 2011). A second definition is offered by Valli et al. (2006) The scientific study of language is called linguistics. . . . All languages, whether signed or spoken, are based on specific rules that the users of the language know
and follow. Without these rules, people would not have a useful communication system. . . . Linguists are interested in discovering and describing the rules that govern the communication system we call language. (p 1)

Some misconceptions need to be addressed regarding language and/or linguistics. Some see them as one in the same; they are not. The word language most often conjures up one of two images: language is only represented orally and/or only written or typed symbols printed on paper represent a language. However, language can take many linguistic and nonlinguistic forms, such as a billboard, a webpage with pictures, hyperlinks, a political cartoon, a music recital, any sign that communicates a message with meaning (e.g., iconic, manual, Morse code). Language does not have to be oral or written. “written language is not speech written down. [Rather] written language extends and builds on the oral language system but does not replicate it” (Kucer, 2009, p. 48).

Internal/External Coherence

The internal aspect of language generally refers to the symbolic vehicle that represents the language. In English, for example, it might be the text. In ASL, it might be the hand shape, the location, the palm orientation, or movement of the manual sign. This representation can be either linguistic or nonlinguistic in form. The external aspect is to use the symbols of language (e.g., text, or some other linguistic unit) within a particular context. It is the context that aids in making meaning of the language in use at any given moment. Together the internal language symbols used with the external context of an appropriate environment create a coherent meaningful event. If either is absent, the message is incoherent, making meaning difficult.
System of Language

All languages have shared features and at least some linguistic properties, called ‘universals’, common to all languages; however, not all languages share every linguistic property. All languages are composed of symbols. All symbols are within a system of language which are organized and used systematically. “The system ‘forms’ may be arbitrary or iconic” (Valli et al., 2006, p. 5). Smaller parts combine and join to make larger wholes (e.g., English: unbound morpheme + bound morpheme = word; word + word + word = sentence; ASL: handshapes + movement + other grammatical features = signs; sign + sign + sign = sentence). Languages are productive, allowing for an infinite number of sentences to be generated while being malleable enough to allow evolution and growth over time. Humans do not have restrictive language unlike the rest of the animal kingdom (e.g., limited to danger, hunger, and mating). Natural languages are not limited across domains, making it possible to generate communication regarding any issue. Conventions and standards of form are produced the same way consistently making it recognizable to its community of users (Valli et al., 2006). Also, “members of a community share the same communication system” (Valli et al., 2006, p. 6). According to Greenberg (1966), there are several universals across all natural languages. An example of these linguistic patterns is that all languages have nouns and verbs, as well as dominant basic word order (e.g., English = subj + V + obj versus ASL = topic, comment).

The system of English comprises prescriptive rules, more so with the written text than with the oral production. There is heated debate about what should be included and excluded in the system of English. According to Kucer (2009), the system is comprised of these ten components: graphemic, graphophonemic, orthographic,
morphemic, syntactic, semantic, text structure, genre, text type, and pragmatics. For these components to be effective in the relationship between the text and the user, they must work in transitive fashion.

As previously mentioned, the terminology that is included and excluded may vary depending on who is defining the system of language and depending on what language is being defined. Valli et al. (2006), in discussing the ASL system of language, begin with the smallest contrastive unit of language, phonology. For any spoken language, phonology is equivalent to sounds; for ASL it is how signs are structured and organized. The misconception is that you must have sound in order to have language. Phonology in ASL is broken down into five parts known as parameters, and any one sign can share one or more of these parameters: hand shape, movement, orientation, location, and non-manual signals (facial expressions) (Valli et al., 2006). Like any spoken language, signs have parts, and in order to understand the meaning of a sign one must be able to break down the parts (Valli et al., 2006). Without laboring every distinctive difference between the linguistics of English and ASL, it is apparent through this brief contrast that any oral language (e.g., English) and ASL have separate linguistic dimensions.

As further evidence that ASL is a natural language that is rule-governed, evolves and grows, there is something else to consider—regional language variation. Just as spoken languages have different variations or dialects from region to region (e.g., West coast versus East coast; the southern states; British English versus American English), so does ASL. The same linguistic and social factors that influence and affect spoken variations of English also impact the evolutionary growth of ASL. This evolutionary
process further supports the fact that ASL is a natural language and could mean signers from one region to another often have trouble communicating (Lucas, Bayley, Rose, & Wulf, 2002). To further reinforce this point, consider that most hearing British and most hearing Americans, with little exception, have no trouble understanding each other when using the shared English language verbally or written. English would be a second language for any HI person from either country. However, two people who are HI (one from either country) would be unable to communicate with each other manually. As mentioned earlier in the paper, each country has its own version of sign language (American Sign Language=ASL versus British Sign Language=BSL), and HI individuals cannot effectively communicate or understand each other across borders due to the vastly different phonologic structure or language variation (for more information see Lucas et al., 2002). In short, evidence that ASL has distinctly separate linguistics properties (its own system of language), separates it from spoken languages (e.g., English).

Reading Process

“Becoming literate rather than being literate more accurately describes our ongoing relationship with written language” (Kucer, 2009, p. 6). This quote reveals that there is a process one goes through to acquire literacy. Although there are opposing views as to how the reading process works, variables that remain constant are the reader’s background knowledge, text content, and the context and purpose for reading the material.

In order to construct meaning while engaging with text, the reader exercises visual and mental processes along with some degree of their unique personal background knowledge. Therefore, the physiological and cognitive dimensions of reading will be
briefly discuss. The cognitive dimensions include the interplay between the system of language (L₁ and/or L₂ knowledge of text being read), perception, memory, background knowledge, reading strategies, as well as, assimilation and/or accommodation upon intake of new text information. It is easy to see that, “language performance changes as the relevant factors impinging on the literacy process change. As conditions and contexts vary, so too will the process and the product of literacy event” (Kucer, 2009, p. 132). It is a malleable process where there is give and take between the components of cognition and the physical act of reading. There is more than one model regarding how the eye and brain interpret text while reading. This author takes the position that selective sampling is the preferred model. It should be noted that the degree of success or outcome of the literacy event, comprehension, will largely depend on how memory, perception, background knowledge, and the systems of language are employed.

Selective Sampling

In reading, the eye sees text surface structures and relies on content words that are sent to the brain as visual information. However, the cognitive brain determines, selects, and processes the most pertinent material and determines how much visual information is used. This interplay between eye and brain fluctuates depending on how demanding the text is for the reader, the strength of one’s reading strategies (e.g., predicting), and how much background knowledge is brought to the exercise. The memory of the brain is somewhat analogous to the memory of a computer. The short-term memory (RAM of the computer) is stored in the brain by the eye (text surface structures of the system of language). There is a constant exchange between the long-term permanent memory, an individual’s background knowledge (hard drive of the
computer), and short-term memory. Given the text and the individual’s cognitive composition, short and long-term memory will work interchangeably to compensate depending on the need (e.g., complexity of material, degree of background knowledge). “The process operates most effectively and efficiently when the information can be made meaningful (e.g., translating the surface structure into a deep structure)” (Kucer, 2009, p. 114).

Background knowledge is what the reader brings with them regarding familiarity with the genre, topic being read, proficiency and knowledge of the L2 system of language, and proficiency of the knowledge of their L1 language, the conceptual and linguistic knowledge in total. Interesting to note that Kucer (2009) quotes studies where the importance of background knowledge for biliterates has a much greater influence on the reading process than other factors, regardless of the language being read. If the reader has little or no knowledge of a difficult text topic and has little knowledge of the L2 system of language, the reading event will be cognitively demanding. This level of demand requires more attention of the reader to reading strategies (e.g., rereading, rethinking) than to the content and context of the text, in addition to slowing them down. If the latter is true, it will hinder comprehension. With little or no background knowledge, the reader may not be able to assimilate the new knowledge into long-term memory due to the lack of enough prior knowledge. In this case, cognitively the brain must restructure; this is called ‘accommodation’. This becomes more of a developmental issue, a bottom-up process referencing the system of language with all the energy and emphasis placed into the lower quadrant of graphemic and graphophonemics. Therefore, before the reader is able to assimilate the meaning of the text s/he must acquire more knowledge of
the L2 (Kucer, 2009). As a reader, one can only imagine the level of difficulty the functionally deaf child encounters. It is an understatement to say that a student coming from a productive gesture system (L1) and transitioning to a speech system (L2) with extremely broad linguistic distances between L1 and L2 greatly impacts their reading comprehension.

Bilingualism and Literacy

Bilingual and bilingualism are terms most generally used in the context of education and most closely associated in the domains of culture and/or literacy. It is worth examining the family with mixed modals and Kucer’s (2009) points on how the diversity of the bilingual student generates several questions regarding their literacy when they enter the classroom setting.

- Will the home language, in this case ASL, be maintained at school as the English language is introduced?
- Will the school language become a substitute for the home language?
- “If two languages are used in the classroom, is literacy developed in both (biliteracy) or only in English” (p. 93)?
- Without prior exposure to ASL via the parents, will ASL and the spoken native language be developed simultaneously or sequentially in the classroom?
- “If sequentially, do students first learn to read in their home language and then learn to read in the language of the school” (p. 93)?
- These are some very tricky questions, given the unique circumstances of monolingual parents becoming a family of mixed modals and the monolingual family’s success in transitioning to a bilingual family, for both parent(s) and child. There are at
least two additional variables that add another layer of complexity in answering these questions that a typical bilingual peer of any spoken language does not face. First, are the parents going to learn sign and introduce it at home, and at what level of proficiency will they reach and/or find it necessary especially given the child’s level of hearing impairment? Second, what services does the school district the child is entering have? What communication modes are offered? Do teachers instruct in sign, and will they be teaching sign as a first language while introducing English?

Much still depends on the circumstances of the individual child. At what point did the onset of hearing loss occur? What was the age of identification? To further complicate matters, auditory testing will generate different frequency and intensity information that will include and exclude different phonemic sounds making the outcome for each individual unique. Is the severity and configuration of the hearing loss the same in each ear? What augmentation will be sought and at what point (how early), if any? Even if two people’s results display the very same severity and configuration, they may not require or demand the same augmentation due to something as simple as their personalities. Each of these questions generate infinite scenarios given the multitude of variables.

Several points need to be made on behalf of L₁ and L₂ development and success of the child’s biliteracy. Second language oral proficiency of an individual and the distance, typologically, between any two languages plays an important role of L₂ reading and writing (Kucer, 2009). Kucer brings to the forefront that learners have greater first language oral proficiency than their second language. He goes on to state that “as learners develop oral proficiency in the second language, they typically develop
increased proficiency with the linguistic feature of the written language and the impact of the first language lessons” (Kucer, 2009, p. 94). Thus, interference from L₁ lessens. If this is so, what happens when the functionally deaf infant is not oral in a first language (ASL) and the outcome of their oral speech in a second language remains to be seen?

L₁ and L₂ development and success of the child’s biliteracy in the case of the deaf or HI child is unique where there is no written or auditory system. And, in most cases, they do not have a strong first language much less oral proficiency.

Even though we established that ASL is an autonomous linguistic system with all the necessary features that constitutes a legitimate language with its own phonological system, it is intimately influenced and connected to the majority or dominant language through the educational system and written component (Marschark & Spencer, 2003). To reiterate Kucer (2009), L₁ oral proficiency is important for L₂ reading and writing. Stahl and Murray (1994) states, a correlation exist between phonological awareness and early reading. Goldin-Meadow and Mayberry’s (2001) research reveals that reading requires familiarity with the language being read. Therefore, in order to be literate in an auditory society, phonological awareness of the English spoken language would be important.

What does it mean to be phonological aware? According to Stahl and Murray (1994), “Phonological awareness is an awareness of sounds in spoken (not written) words that is revealed by such abilities as rhyming, matching initial consonants and counting the number of phonemes in spoken words” (p. 221). Once acquired, the child needs to be able to utilize the spoken language they know and map that knowledge onto the printed words on the page (Goldin-Meadow & Mayberry, 2001). Throughout this paper, the author has defended the notion that a strong first language (L₁) of ASL will engender the
acquisition of a second language (L2) English. Even if the research supports this, there is a huge leap from acquiring a first language and learning to read it. This fact is true of hearing children who may still have difficulty learning how to read and write in their native spoken language. For a child coming from a productive gesture system without a written language and acquiring a second language with a speech system, the task is even more daunting. It is an understatement to say that without equivalent exposure to the same auditory system the HI child will be faced with a greater challenge to become literate in a spoken second language of English. In their research, Goldin-Meadow and Mayberry (2001) suggest that HI children may be using a coded system not based on sound, and sums it up by saying that deaf and HI children need to learn how to map “between the sign language they know and print” (p. 227).

Another issue of language distance is the similarities and dissimilarities between the surface level features (letters, sounds, spelling patterns, grammatical word ordering, and structure of discourse) and how they can serve as a facilitator or impediment to second language literacy (Kucer, 2009). The results of an interesting study conducted by Woodward and Woodard (1976) states:

ASL, a language channeled through the manual visual modality, has linguistic properties similar to those of oral languages, except for physical sound. The absence of sound, however, really presents no theoretical problem since ASL has a formational level of structure analogous to, but not dependent on, the phonological component of oral languages. (p. 211)

Along those same lines, Kucer (2009) quotes Snow (2006) as saying “phonological awareness and knowledge draw upon the same pool of abilities, regardless of language” (p. 94). Therefore, this commonly shared capacity and ability means that the skill of being able to segment speech into phonemes of the first language can be applied to the
second language. It is possible that the bilingual’s capacity to apply such skills might allow for increased appreciation of metalinguistics. Once again, referring back to Goldin-Meadow and Mayberry’s (2001) research, the lack of phonemic awareness can severely impair reading English for the HI.

Koda (2004), a reading theorist and author, reviews several theoretical models for second language reading process, acquisition, and competence from a psycholinguistics point of view. In contrast to other researchers, where their emphasis is more of a social construct, her emphasis is more on the cognitive relationships between the first and second language (L₁ ↔ L₂) processing with less attention to the affective. The author does not make an argument for one theory over another. Each model has its weakness, therefore, no one theory offers a complete answer to how one processes and obtains competence in reading. Since this is the case, the author of this thesis will expand on one theory, the Interdependence Hypothesis by Cummins (2006). Although this theory can be and is taken from language acquisition theory, Cummins, in his paper, has applied this same theory to reading acquisition theory and ASL.

**Interdependence Hypothesis**

This hypothesis is the issue of the reader’s reliance on the first language as second language proficiency develops. Rather than developing strength in the second language to alleviate dependency on the first language, Cummins claims the inverse. The greater the degree of ability, knowledge, and use of L₁ skills the more likely those skills will transfer to L₂. This makes for more L₁ dependency, not less.

Citing from Cummins’ (2006) paper in which he applies his principle of interdependence hypothesis: “To the extent that instruction in Lx is effective in
promoting proficiency in Lx, transfer of this proficiency to Ly will occur provided there
is adequate exposure to Ly (either in school or environment) and adequate motivation to
learn Ly” (p. 2). Cummins (2006) summarizes by saying that it is a necessary first step to
develop a healthy conceptual foundation in a language in the pre-school years for
ensuring literacy development in L2, in this case the second language of English. In
Cummins’ view, ASL qualifies as a language suitable for early conceptual development.
By showing a correlation between students, ASL proficiency levels, and their
development of English reading and writing skills, the research demonstrates that the
interdependence hypothesis theory applies to the relationship of ASL-English equally as
much as it does across all other spoken languages. This could contribute to the
explanation of why HI children born to HI parents excel over their HI peers of hearing
parents. The consistent and early exposure of ASL (L1) and the incidental development of
ASL language arts from HI parents signing to their HI offspring “is no different than the
rationale for developing strong English language arts among children whose first
language is spoken English” (Cummins, 2006, p. 2). Subsequently, ASL does not
interfere or impede with the acquisition of reading printed English (Cummins, 2006), but
rather enhances it. So, as a result, it is important in the early stages of life to cultivate a
strong L1 foundation not only for cognitive growth but also to identify with a social
community for affirmation of one’s intellect and personal individuality (Cummins, 2006).

Input Hypothesis

Where Cummins claims that the foundation and competence in a first
language aids in a transference of proficiency to a second language, Krashen’s input
hypothesis, mentioned earlier in the language acquisition section of the thesis, can also be
applied to literacy. His theory further supports the importance and benefits of a strong L1. Not only does competence in L1 improve and expedite L2 acquisition, but also allows for greater increase in the learning curve of skills and conceptual knowledge. In tandem with Cummins’ interdependence hypothesis, Krashen’s input hypothesis refers to any spoken or written input that is necessary to learn a language (Cummins, 1989).

The connection between Cummins’ interdependence hypothesis and Krashen’s input hypothesis is significant because the “knowledge (e.g., subject matter content, literacy skills, etc) acquired through linguistic interaction in one language plays a major role in making input in the other language comprehensible” (Cummins, 1989, p. 49). In other words, if a HI infant has a weak L1 (either English or ASL) knowledge of a particular concept, such as the word ‘trust’, then s/he will have greater difficulty acquiring that concept in L2, the second language. The child will have to learn or re-learn the meaning of the concept in L2, with the second language grossly impairing the abetment of (L2) language acquisition (Cummins, 1989).

**Pedagogical Strategies: Role of Signing During Incidental Reading**

Even though the deaf community has made great strides, much still needs to be done to help support the HI in language and to improve literacy scores. It is documented that “On average, deaf readers fall behind their hearing peers at an average rate of half a grade each year” (Komesaroff, 2002, p. 38). According to Smith (2007), the average deaf adult does not read beyond the fourth grade level due to the fact that they do not have enough understanding of the English language. Although the decisions made in the past regarding literacy practices in the classroom for the HI have left scars of
stereotyping and labeling, the goal for this community should be to continue to move beyond the historical. The HI community should also examine where they are today and identify the key concerns parents, caregivers, and teachers have regarding the poor literacy levels and continuous underachievement. The power of the social construction and the perception that the HI are disabled, and therefore at a disadvantage academically needs to be addressed before large strides may be made in literacy education (Komesaroff, 2002). By the same token, while policy makers, teachers, and parents are busy examining and working toward change; it is not an option for those parents and teachers in the trenches to sit on the sidelines and do little or nothing. They need to continue to strive toward improving literacy standards and work to close the linguistic gap between the HI and their hearing peers without undermining or diminishing the importance of the HI language and culture.

With little exception, all parents want their children to be competent. They want their children to be successful academically, socially, and occupationally. Since it is an oral, hearing majority society, it is very important our HI children function successfully within that society.

Having touched upon some of the theories on language acquisition, literacy, and reading, let us turn attention now to a child’s vocabulary development. The author will briefly examine how reading aloud for enjoyment while signing ASL to a HI infant by the hearing parent benefits them. In addition, some classroom pedagogical strategies will be examined for application within the home.

The following pedagogical research serves as justification for teaching and encouraging vocabulary to increase and improve literacy, while reasserting the rationale
for an online, interactive site as a tool for referencing vocabulary and encouraging ASL language learning.

Contrary to what is most often believed, ASL as a first language does not hinder learning the skill of reading in any written language. In fact, as established, research suggests just the opposite. The highly visual yet non-oral ASL as a first language serves as a conduit to the skill of reading and its success. What appears to be key is the continuous and steady growth of language acquisition throughout early childhood and elementary school to proficiency no matter what the first language is, as long as it is a linguistically rule-governed system. There is evidence that this continuous growth of language, any first language, correlates to the possibility for continuous growth of greater reading proficiency of any spoken language. “In fact, controlling for whether a child’s parents were hearing or HI, signing skills turn out to be the best predictors of reading skill” (Golden-Meadow & Mayberry, 2001, p. 226). As mentioned earlier in the paper, depending on the age the child becomes impaired and when the impairment is discovered will determine the degree of linguistic/receptive input (manual and/or spoken), and influence the output of communication (e.g., oral or manual), which is just as variable. HI children born to hearing parents are academically at risk of obtaining a proficient level of literacy without a strong first language.

Cannon, Fredrick, and Easterbrooks (2010), in a quantitative research article, point to the detrimental effects of not reading to children in general. For the functionally deaf, however, the results are greatly exaggerated and put the child at greater risk than his/her hearing peers. The dearth of receptive/expressive oral discourse leads to problems, such as, a poorly spoken language, lack of verbal expression, smaller mental
lexicon, lessened degree of world knowledge, declining interest in reading and vocabulary, poor readers (which leads to reading easier material), exclusion from the general education classroom and mandated testing criteria, issues of low self esteem, and lack of confidence.

Gioia’s (2001) case study from the Reading Department of State University, New York, points out that the many parents who get discouraged and discontinue reading to their children set them up for a diminished academic foundation and poor literacy, creating an educational gap between themselves and their hearing peers, one that often never gets filled. Where the previous two research articles included the hard of hearing population, Gioia’s study is in reference solely to the functionally deaf. Penno, Moore, and Wilkinson (2002), proffer a quantitative study that deals strictly with the hearing population in an effort to prove or disprove the ‘Matthew effect’, and yet is strongly correlated with much of what was found in the other two research studies by Cannon et al. (2010) and Gioia (2001) regarding the consequences of diminished receptive input in HI (e.g., text, speech, being read to).

The ‘Matthew effect’ is a biblical reference taken from a passage in the book of Matthew . . . [and is associated with] . . . the phenomenon that poor readers tend to read easier materials, and better readers, more complex materials. In other words, children with larger vocabularies learn more new words than do children with smaller vocabularies; therefore, as children continue through school, the gap between the lexicon sizes of these groups grows every year. (Cannon et al., 2010, p. 99)

In addition, Penno et al. (2002) point out that incidental vocabulary learning can take place through a variety of modes like television, storybook reading, and/or language with peers (siblings, parents etc.) to name a few. They also point out that by the age of five “the largest contributor is thought to be written text” (Penno et al., 2002, p. 23). If this is
the case, then that makes an even greater argument for parents to expose their children to large quantities of literature regardless of their oral/aural status, as opposed to diminished or discontinued reading.

What part or benefit does manual language, signing in ASL, play in reading? The study done by Cannon et al. (2010) sets out to determine if, when viewing multimedia (visual) math problems, students with hearing loss learn to recognize math vocabulary better in the presence of a skilled signed model only or with direct instruction of the vocabulary, followed by the signed model. Within this same research, Cannon et al. (2010) quote earlier research by Cummins as recognizing that a poorly established first language (L1 = ASL) has a negative impact on the acquisition of a second language (L2 = English). Therefore, this study not only encourages, but recommends, that intense instructional methods, such as pre-teaching vocabulary while incorporating visuals will not only aid to increase signed vocabulary but increase English literacy (Cannon et al., 2010). The skill of ASL is directly linked to increased English literacy. The research findings suggest students would benefit most from the use of imagery (e.g., visuals, ASL pictures, multimedia) paired with preteaching intervention fostering vocabulary growth (Cannon et al., 2010). In the study conducted on 3-4 year olds by Gioia (2001), the teacher used ASL for unfamiliar words as an opportunity to teach ASL, while simultaneously teaching a printed language with a sound system, English, with a system of manual phonology.

Each study reveals strategies to improve literacy. Research has shown that many of the same strategies (e.g., scaffolding, visuals, context, etc.) used to improve reading skills, language, and vocabulary acquisition that work to aid and improve the
second language learner, the functionally deaf using ASL, often benefits the average hearing child as well. By definition, the category of the second language learner includes the HI population who use a manual language (e.g., ASL).

Tatum, a reading specialist in literacy instruction, has done work that includes a broad range of reading solutions. Even though Tatum’s emphasis is not on the HI population, any population with the potential of being at-risk can benefit from his approach. His underlying theory is that of a social construct, a comprehensive framework for literacy aimed at transforming the reader by developing contextual curriculum and selecting reading materials that will be relevant to the students’ lives. Text will be more meaningful if it can bridge the gap between the student and the real world—the student’s world in and out of school. His foundational belief lies in the fact that those teaching should approach it from a culturally sensitive perspective and view the students’ culture as an educational resource for helping students who have been underserved by our nation’s public schools (Tatum, 2005). He further argues that conditions for learning are most effective when students’ cultural backgrounds are used authentically in specific activities, yet, reminding us that not all students from a particular culture learn the same way. This applies to the community of deaf and HI who have a distinct culture that needs recognition and yet subsequently, like any student population, requires multiple opportunities and varied instructional strategies to accommodate the fact that individually each student learns differently.

Tatum (2005) sets the reading stage by determining the purpose for reading first and foremost. Secondary to purpose, he outlines student expectations and makes the students accountable by shifting the responsibility for their learning to them. His
framework for activities are based on “before, during, and after-reading strategies” (Tatum, 2005, p. 79) that help tap prior knowledge and scaffold beyond the ‘here and now’. Given this construct, some of Tatum’s theory of “culturally relevant pedagogy” (Tatum, 2005, p. 79) can be extrapolated, adapted, and applied to a younger HI population in our public schools, as well as his multiple strategy approach for teachers and/or parents.

While Cannon et al. (2010) research weighs heavily toward the benefits of reading to the HI and the differences between the at-risk HI and their hearing peers, it offers some strategies for improving reading to the HI child even though they are intended largely for the hearing majority. The researchers discuss the use of best practices that includes reading to the hearing and HI, the use of interesting context-based format, relevance to the student, as well as dialogic reading and targeting vocabulary. According to the research, “storybook reading is a powerful tool that provides context for vocabulary development of not only English but American Sign Language as well” (Cannon et al., 2010, p. 99). Another recommendation for the English language learner that can be applied to the functionally deaf is selecting “target vocabulary words that account for students’ diverse language backgrounds” and it is essential to select those words seen “frequently in text . . . [with] the use of imagery” (Cannon et al., 2010, pp. 99-100). Cannon et al.’s research supports the thesis because it explains how reading benefits a child, as well as reveals the importance of visual signing as a language and the value of signing while reading to increase the English language literacy and vocabulary in both languages.
A hearing child born to hearing parents, as opposed to a HI child born to hearing parents, is of a lesser consequence since they share the same common language. When there is an inconsistent mix of the oral/aural modals, problems arise. Gioia (2001) examines the relationship between the HI child’s language development and that of the monolingual hearing parents, documenting the domestic environment and the role parents play in their child’s emergent literacy experience.

In a case study of three HI preschool children, Gioia (2001) discusses her findings through incidental reading during storybook sharing. After establishing clear conventions during ‘storybook’ time (e.g., turn taking etc), the teacher made a point to identify and discuss new and/or unusual words/vocabulary, ask questions that would spark interest, engagement, prediction, scaffold information for greater comprehension, assist the children in drawing connections with their own lives (point of view), and identify the difference between fact and fiction. Thus, she was aiding the children in the procedure and techniques of constructing meaning (Gioia, 2001). Signing ASL was included in all of the processes when appropriate. The teacher used corresponding ASL and fingerspelling for unfamiliar words. Results indicated a positive correlation between fingerspelling and literacy success, as well as increased connection to the characteristics of oral/written language (Gioia, 2001).

Another empowering strategy that the teacher employed was that of including academic language or jargon terms such as author, illustrator, title, and page. During storybook sharing, children were able to interact, make comments, and engage in story retells creating contextual conversations that fostered clarity and comprehension. By modeling and engaging in conversations, the teacher was teaching students to build
academic language and become accustomed to interacting and achieving language of literate pursuits (Gioia, 2001). It was not just the conversations that were important, but the combination of open-ended questioning used to provoke thought, teach ASL, and verbalization (e.g., retelling) to reinforce comprehension.

Tatum (2005) recommends creating a ‘word wall’ to strengthen vocabulary for both immediate identification and comprehension taken directly from the text being read, often referred to as high frequency sight words. One of his number one rules is never to present vocabulary out of context in an effort to avert rote memorization of words (Tatum, 2005). To further enhance this activity, an ASL sign can accompany the word(s).

In Penno et al. (2002) research that deals strictly with the hearing (peers), they were unable to dispel the fact that the gap between the higher ability student and the poorer student (i.e., the ‘Matthew effect’) still exists. By reading to a child, vocabulary gains could not be made by the child simply listening to a story. Their findings did support much of what was found in the research of Gioia’s (2001) and Cannon et al. (2010), both of which included the HI population. Penno et al. following strategies of repetition, preteaching vocabulary, contextual clues, and story re-tell all lead to vocabulary growth and more comprehensive understanding during reading for enjoyment. As was done in the other studies, the instructors used a combination of direct instruction strategies and contextual use of vocabulary during incidental reading. Penno et al. make a point to say that incidental reading alone is not enough; greater gains are made when the “teacher provided an explanation in context of target vocabulary items” (Penno et al, 2002, p. 31). The gains are demonstrated by both receptive and expressive vocabularies
of children, a direct correlation to school progress. In the end, Penno et al. concluded that further strategies are still needed to fortify the learning of lower achieving students.

So what does this all mean for the caregiver/parent of a HI infant? What can we take away from these studies and apply to the HI infant in the home environment in an effort to make a child ‘school-ready’ and increase the chances of academic success? Many of the strategies that were mentioned throughout this paper are simple and can be extrapolated from the classroom and implemented into the family literacy practices to make reading for enjoyment beneficial and truly more enjoyable for both parent and child. A summary helps to recap some of those strategies of best practice. To begin with, never stop reading to your child; make it a daily ritual to create receptive vocabulary. While reading, identify new or difficult words and concepts (target vocabulary) as an opportunity to pre-teach by rephrasing and explaining in simplistic terms the meaning of target words, simultaneously using the time to utilize corresponding ASL signs and fingerspelling.

As you use this explicit instruction of pre-teaching, include rephrasing of existing text, pointing out and explaining surrounding text and/or pictures, modeling the strategy of contextual clues. Create a word wall of vocabulary with the English gloss and ASL sign. Use of purposeful questioning strategies, open-ended questions for engaging and maintaining interest, teaching prediction, scaffolding to break down and clarify information for greater comprehension helping the child draw connection (relevance) to their own lives (point of view), and teaching fact and fiction. To repeat Gioia, these strategies aid children in the procedure and techniques of constructing meaning.
Two other important strategies that many parents may overlook or simply not be aware of is the use of academic jargon and dialogic reading. Before reading to a child, point out the title of the book, the author, and explain what an illustrator is while showing them the artwork. As the child matures, the title page and publisher can be included. As insignificant as this may seem, this small and effortless exercise when repeated time and again, will help to close the gap between the functionally deaf and the hearing peer. It is this ‘academic language’ that is valued by hearing mainstream society, raises awareness to school-aligned norms, encourages critical thinking, and prepares children for the linguistic demands within various disciplines (Zwiers, 2008). As the child gains more speech, reverse your roles; encourage the child to re-tell (dialogic reading) the story to you and ask them simple questions. This will reinforce comprehension, foster clarity, and verbalization (expression) of vocabulary. Reading a story repetitively cannot be overdone. Each time a child hears a story repeated, new knowledge is acquired until language skills are mastered.

Most of these strategies are automatically and instinctively used by hearing parents when reading to a hearing child, parents unaware of the skills they are bestowing on their child. Whether a child is hearing or of a second language population (e.g., ASL), all the strategies mentioned will benefit the preliterate child during incidental reading for enjoyment. For hearing parents with little or no knowledge of sign language, this is the perfect opportunity to start at a very low level and grow with the language as your child does through the “Shared Reading” book bag ASL DVD and website, www.sharingliteracy.com (see Appendix A).
Given the research, signing for the HI is a necessary additive for academic success as well as for building a line of common communication within the family structure and encouraging ASL for the HI infant. For the sake of this paper, ASL has a definite place in the building of vocabulary, literacy skills, and greater language acquisition, and for the strategies suggested, including the use of ASL, it is appropriate for preparing, strengthening, and improving academic progress.

In the end, Penno et al. (2002) concluded that “additional strategies are still needed to support the learning of lower ability students” (p. 32). This author asserts that by employing these strategies earlier in the form of preliterate home practices, a child will be better prepared or more school-ready, the onus of which falls on the parents’ shoulders. While nothing can be done to close the distance of the linguistic structures between the L₁ and L₂ languages, the research suggests that a strong L₁ coupled with some suggested classroom strategies certainly should help to minimize the gap of the Matthew effect before entering school.
CHAPTER III

METHODOLOGY

A necessary first step is to begin by giving credit to Dr. Hernández, Graduate Coordinator for Teaching International Languages, for planting this seed. This project became a personal endeavor of learning the Deaf culture and American Sign Language first hand while applying master’s level language acquisition, linguistics, and literacy theory.

Available through the Early Start Deaf and Hard of Hearing Program is a literacy series entitled the Shared Reading Project created and disseminated by Gallaudet University’s Laurent Clerc National Deaf Education Center. The literacy program came to the author’s attention through a teacher for this author’s HI grandchild. During a home visit, the teacher, assigned through Student Program and Services, left a book bag and suggested that this might aid the parent in reading a popular children’s book through ASL signing to promote literacy. However, without the ability to understand ASL, this placed the level of signing on the tape beyond that of the parent’s comprehension. It was then that the idea of creating a key for each book to assist hearing parents was born. The idea was introduced to the Student Program and Services Deaf and Hard of Hearing teacher and Dr. Hernández, the coordinator of the Teaching International Languages Program at California State University, Chico. Each agreed it was a good idea. Dr. Hernández suggested contacting Gallaudet University.
On September 16, 2011, contact was made with Laurent Clerc National Deaf Education Center through Gallaudet University. Due to funding and/or lack of available trained deaf candidates, rarely does a trained tutor accompany the videos to assist parents in signing a book as the program was designed. It was suggested that an English gloss needs to be included in the absence of a deaf tutor who could sign. This was followed up with an email to the Manager of Training and Professional Development at the center. A copy of the email granting permission to work on this idea as a supplement to the Shared Reading Project was submitted with the Chair’s Verification Sheet.

Gallaudet was more interested in a video supplement than an insert (e.g., flyer, pamphlet, flash cards) to the book bags. Taking into consideration Gallaudet’s preference, it was decided that the largest audience could be reached, with the least expense, through a website. Two hurdles needed to be addressed through the School of Graduate, International, and Interdisciplinary Studies. The first was to solve the problem of how to find and publish people signing, a human subjects in research clearance issue. Secondly, the policy of non-print media projects requires the student to demonstrate competence in the medium chosen, in this case, web authoring. After some discussion with the Graduate Studies Advisor, it was decided that requesting permission for graphics already in publication would be more efficient and expeditious than filming a subject signing and preparing each frame of film for a suitable file size for HTML coding. It was determined that screen shots of various webpages from the website, www.sharingliteracy.com, would be inserted in Appendix A of the thesis to prevent any complications with non-print media project requirements.
Dr. Vicars’s is not only an associate professor of the ASL deaf studies program at California State University, Sacramento, but also owner/president of Lifeprint Institute. His institute began as an online support to parents of deaf children who did not have access to sign language classes. Familiar with Dr. Vicars’s work, contact was made to acquire permission to reprint his still and animated GIF/JPEG photos, as well as to gain acknowledgment that the final thesis would be uploaded to the Chico Digital Repository (CDR) and would be available on the World Wide Web. On April 27, 2011, permission was granted in the form of an official letter placed on California State University, Sacramento letterhead via email. A copy was submitted with the Chair’s Verification Sheet. To be fair to Dr. Vicars, it should be noted that he was extremely generous of his time and talent, and went out of his way to do some custom animations regarding the specific children’s book, *Goodnight Moon*.

Close analysis of the signing narrator on the VHS tape was the first step in translating ASL into an English gloss. This was accomplished by initially developing a table with four columns: (1) written English text from the original book content or text per page, (2) written English into ASL syntax translation equivalent per page, (3) any commentary expressions and/or gestures, referred to as non-manual signs that would aid the viewer, and (4) linguistic terminology. After translating the tape, the author sought editing from the deaf community to confirm the accuracy of the English gloss. After critiquing the translation, the search for someone to help with webpage design began.

Being previously familiar with Hypertext Mark-up Language (HTML) and the free web creation and posting site, Yola.com, through classes at California State University, Chico, this author began consultation with a professional as to the best
approach for customizing and publishing. The goals for the website were simplicity for
the user and cost effectiveness. The consultations lead to hiring a gentleman for
developing the Cascading Style Sheets (CSS), the rudimentary beginnings of the
customization of the website, and markup language tutoring. It was important that control
was maintained over the input of the data to ensure accuracy of the English gloss and
linguistic content.

Contact was made with Ms. Wallace of Gallaudet University Press to acquire
permission granting the use of the textbook, _Linguistics of American Sign Language: An
Introduction_, by Valli, Lucas, and Mulrooney (2006), for definitions and grammatical
rules governing American Sign Language. A copy of the correspondence was submitted
with the Chair’s Verification Sheet.

The design of the website, www.sharingliteracy.com, is intended to allow
anyone the opportunity to examine the similarities and differences across the two
languages, English and American Sign Language. The user will see that there are six
hyperlink tabs at the top of each of the webpages entitled HOME, Book Titles,
Fingerspelling, ASL Basics, Linguistic Concepts, and Acknowledgments.

The tab on the far left, HOME, gives an overview of why and how the
webpage was created, as well as guidance on how to use the website.

The second tab, Book Titles, allows the user to select among over 30 popular
children’s book titles published within the Gallaudet Shared Reading Project. For this
thesis project, _Goodnight Moon_ was chosen as a prototype.

The third tab, Fingerspelling, is a direct link to Dr. Vicars’s website,
www.lifeprint.com. It shows the direct correlation of ASL sign representing the symbols
of written English, letter for letter. When used within any of the glossed stories web
pages, fingerspelling is represented in small caps with hyphens between each letter, for
example, G-O-O-D-N-I-G-H-T for Goodnight.

The fourth and fifth tab, ASL Basics and Linguistic Concepts, together are the
grammatical principles governing ASL. These two tabs were separated because the ASL
Basics represents the more specific rules and mechanics of how the overall ASL language
works, and the Linguistic Concepts refers to the terminology and analysis of concepts
that occur across many languages. In each of the tabs for ASL Basics and Linguistic
Concepts, contrasts are made between ASL and the majority language, English, when
possible. Once the linguistic basics and concepts were gathered, they were reviewed by
Dr. Wright at California State University, Chico.

The final tab to the far right acknowledges and gives credit to those who have
contributed and advised me in this endeavor. Included in this is a dedication to the
author’s grandchildren, one of the many reasons for obtaining this Master’s degree.

A formal analysis of any two languages is called ‘cross-linguistic analysis’
and comprises data or written text from each. The comparing and contrasting of each
language allows the reader to analyze the similarities and differences of the
morphological and syntactic structures within the systems of language. Since ASL does
not have a written language, the data of ASL can only be compared against that of the
English data (text) by pictorial form. Therefore, a typical page in any of the children’s
stories will include a row of one or more still or animated pictures directly corresponding
to each sign on the Shared Reading Project VHS/DVD. The pictures have been broken
into single words and short phrases to best mimic the children’s storyline. When there is a
line break on the webpage, it is representative of two opposing pages within the
children’s book that both have text. As in any children’s book when you have to
physically turn a page, there will be a hyperlink entitled Next Page or Previous Page to
navigate the reader through the corresponding web pages. These can be found at the
bottom of each webpage.

Under every picture or animation, there is one to three lines of text in different
font formats. The first line of text is the English word equivalent to the ASL sign in the
children’s book. This line of text is referred to as a ‘gloss’ and is formatted in bold, small
capital letters. The viewer might see variations within the gloss, such as hyphenation, an
equal sign between words, or a ‘#’ sign before a word. Any time there is hyphenated
English words it will consistently represent fingerspelling. A set of English glossed
words with an equal sign represents the signed word on the left with its literal English
interpretation and the intended meaning on the right. For example, for the set of English
glossed words DRAW = ILLUSTRATOR, the word DRAW on the left represents the sign
used to denote the individual responsible for the artwork of the book mentioned on the
title page, the ILLUSTRATOR, on the right. The ‘#’ sign before an English glossed word is
the accepted use of demonstrating that a particular ASL sign is a lexicalized
fingerspelling sign.

The second line of text will be in the format of italics. This additional
information of gestures and motions will allow the viewer exposure to non-manual signs,
as well as aid the viewer in following along to the corresponding children’s book and/or
the webpage to the VHS/DVD.
The third line of text is formatted in red and hyperlinked to either the fourth or fifth tab, ASL Basics or Linguistic Concepts respectively. It is here that the viewer can research and gain a greater understanding or further clarification of the ASL linguistic structure. This can be particularly valuable for the hearing parents when English is their first language and they want greater insight into the syntactic and morphological analysis of the second language of ASL. This may seem like a minor additive. However, it not only will aid the hearing parent in learning the second language and ease their job as the child’s first teacher when reading and signing, but it becomes an important issue when the child enters the language arts classroom. For example, the descriptive rules learned incidentally by most hearing children prior to entering school dictate that the English language follows a subject-verb-object pattern, whereas, ASL follows a topic-comment pattern. This implicit knowledge becomes explicit with each red hyperlinked text under various illustrations. This insight and greater knowledge of the second language for the hearing parent will help them to anticipate the academic problems a hearing-impaired child could have in the classroom with their second language of English.

In summary, this website is directed toward parents, special education professionals, teachers, and/or future researchers who have an interest in emergent language learners with hearing impairment. It is intended for early intervention to encourage receptive language by simultaneously reading in the majority language, English, and signing ASL through incidental reading of storybooks. Not only is it intended to improve the child’s literacy, but assist the parents in learning a second language, ASL, while giving them insight into the contrastive linguistics of both languages.
CHAPTER IV

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

Summary

Significant problems persist when parent and newborn do not share a common language. The purpose of this project is twofold. The main purpose is to encourage and support HI children’s emerging literacy through incidental reading. However, it became obvious during the research and writing process that the primary purpose was not attainable without providing support and encouragement to hearing parents who have no way to make available receptive skills to their pre-linguistic, functionally deaf children unless they learn sign language, a second language (L2). The second language skill (L2) of the hearing parent is significant and paramount to the success of the HI child’s emerging literacy through family literacy practices and incidental reading. This project was especially designed for deaf or HI infants and their first teachers, and for the hearing parents and/or caregivers, with little or no exposure to ASL, who find themselves thrust into learning a second language while fostering literacy for their child in both first and second languages, ASL and English respectively. For the broadest exposure and the greatest accessibility, this project was developed in the format of a website and is meant as an added resource to Gallaudet’s Shared Reading Project tapes/DVDs. The website, designed to bridge the gap between the basic skills a hearing parent needs and the tapes
advanced level provides a prototype of a popular children’s book. The site displays both still and animated translation of ASL glossed in the written and spoken majority language of English with hyperlinks to cross-linguistic explanations.

Conclusion

As seen in the research of various linguists, such as Valli et al. (2006) it has been established and substantiated that a visual language, such as ASL, is as credible a linguistic system as that of a written or spoken language. Research shows that it is a fallacy to assume that receptive input must be received solely through the oral/aural modals for language to be acquired. Language does not equal speech. Furthermore, research supports that the adverse (or counterproductive) effects of receptive input of a visual language by comparison to that of an oral/aural one during the initial stages of acquisition are negligible.

With ASL established as a natural language, this allows for a survey of a number of theorists from different orientations. These same traditional theories of second language acquisition and theoretical models intended for classroom instruction for bilinguals, generally reserved for written and spoken languages, were applied to this project. To name a few, Chomsky and Krashen are leaders from the perspective of the linguistic orientation. Approaches by Piaget, Long, and the more contemporary, Cummins, are from the strong cognitive and sociocultural stance. Vygotsky relies largely on the pragmatics of the system of language. Lambert’s model of bilingualism is founded in the roots of social psychological mechanisms and child development often applied to heritage language learners.
Establishing ASL as a language, coupled with changes in educational policy, has allowed ASL to be viewed as a second language. Over 90% of HI infants are born to hearing parents. The pairing of incompatible modalities within the same household allows for the principles of bilingualism to apply. The latter is an important point in this thesis. The HI child is expected to acquire and be proficient (e.g., academically, occupationally, socially) in the language of the majority. Cummin’s Interdependence Hypothesis and Krashen’s Input Hypothesis theories stress the importance of a proficient first language (L1) in order to be successful in the second language (L2).

After reviewing an historical synopsis of political and educational policies, a more flexible pluralistic definition of literacy is provided by Street (1984). His ideology, a social construct, addresses the parent-child dynamics, as well as the ever-changing political and educational environment affecting all of society to date.

Differences across socioeconomic classes are examined before introducing reading theory. Reading theory discussed encompasses the interdependent linguistic dimensions of cognitive, linguistic, sociocultural, and developmental, together with the linguistic distance between the two languages, English and ASL. The greater the linguistic distance between any two languages, the greater the argument for a strong first language (L1) prior to acquiring L2. Kucer (2009) stresses the importance of making information meaningful and the importance of background knowledge of L2 in the brief overview of the physiological and cognitive dimensions of the reading process. Koda’s (2004) approach is more from that of the psycholinguistics point of view and emphasizes the cognitive relationships between first and second language processing with less attention to the affective. In short, a HI child transitioning to a speech-based system (L2)
from a system of productive gesture (L₁), coupled with the typological distance of a non-written language to one that is written, plays an important role in L₂ reading and writing.

Literacy is not a given. The root of the language experience begins at home with the responsibility falling squarely on the shoulders of parents as the first teacher of language and literacy and the most ardent advocate within the first five years of a child’s life. Children acquire sign and speech comparably, and at the same pace, provided they are given adequate receptive input to each language. Mirroring a parent’s quantity and quality of language is one of the stronger predictors of later academic performance. In order for the HI to be competent, they must be literate in the majority language, and parents must intervene early with receptive input from both L₁ and L₂ languages. Irrespective of the fact that the languages are a mix of visual and oral/aural modals, as in all second language learners reading to the pre-emergent reader must be done from a bilingual approach for the child to be biliterate. Aside from gaining language and/or literacy, one of the key by-products of obtaining language is the interplay between cognition and linguistic development.

As a final note, vocabulary plays an important role in gaining and improving literacy. Penno et al. (2002) and Cannon et al. (2010) support teaching and encouraging signed vocabulary while reading through intensive instruction to increase English literacy. The research demonstrates that there is a direct correlation to school progress when children have strong receptive and expressive vocabularies in both languages. Cannon et al. (2010) discuss the detrimental effects and problems related to a dearth of receptive/expressive literary input and how this diminished foundation leads to an educational gap called the Matthew effect.
It is important to remember that vocabulary and literacy is learned through a variety of modes; however, research points out that the largest contributor is written text. Unfortunately, no one is able to obtain vocabulary and language by simply being read to incidentally and through listening. Although the research of Penno et al. (2002), Gioia (2001), Golden-Meadow et al. (2001), Cannon et al. (2010), and Tatum (2005) was conducted and written for educators, the strategies can be extrapolated and applied to establish a literacy-rich atmosphere within the home. In an effort to close the academic gap between hearing and HI peers, several pedagogical strategies and recommendation are suggested and encouraged to the reader in an effort to foster vocabulary growth and improve literacy while reading incidentally. Parents must never stop reading to their children. This is true whether the child is hearing or not. But, it becomes paramount if the child is HI that a parent continues to read and sign. This process can be the first step that allows the parent/child to acquire the language and literacy necessary for success within the society of the majority.

Recommendations

Based on this research, the author would like to make the following recommendations to parents/caregivers, educational professionals (e.g., teachers, instructional paraprofessionals, translators/interpreters), future researchers:

- **Parents/Caregivers**
  - Give your child language (L₁) from the day s/he is born. It is important to establish, cultivate, and maintain a strong first language. According to the research, this is especially true for any second language learner. Contrary to being
detrimental to learning a second language, research supports the fact that it is more beneficial to maintain a strong first language. In fact, there is evidence that knowing any first language facilitates learning a second language, and one cannot learn to read without knowing a language upon which to map a sound system on to the printed code of a second language (Goldin-Meadow & Mayberry, 2001). However, reading being based on an aurally developed phonological system makes it particularly challenging for the HI.

- Start reading. Develop a family literacy environment and reading rituals for your child to model. As your baby develops and grows, continue to read and sign to them. Studies have shown that it is the engagement to print that has a positive effect on linguistic and cognitive development (Gioia, 2001). Reduced reading often gets neglected by English-language learners and hearing parents of HI children. This reduction leads to an overall lack of world knowledge and smaller lexicon, widening the Mathew Effect (Cannon et al., 2010)

- By making some small adaptations to reading rituals and adding to a repertoire of reading practices (e.g., dialogic, extending/expanding language, context based, pre-teach, repetition), a parent can increase engagement and aid the child in gaining better comprehension. By assisting children in constructing meaning from printed text, the parent will foster literacy learning (Gioia, 2001). For the HI child, signing while talking in a voice/sign/print match will allow for the child to have an increased opportunity to map their knowledge of sign language onto print (Goldin-Meadow & Mayberry, 2001).
Educational Professionals

- It should not only be policy, but articulated that any linguistic minority population is a priority for counties and school districts. The educational system needs to provide the necessary funding for the programs and services of second language learner populations so they may continue to have quality curriculum that is supported by current research and taught by qualified staff.

- Educators need to continue to address the key concerns of poor literacy levels and continuous underachievement that perpetuates second language learners, as well as the deaf/HI population. There needs to be an unabated effort to close the linguistic gap between all English language learners and their peers where the majority language is dominant. This needs to be done without undermining or diminishing the importance of the second language learner’s home language (L1) and culture. This is equally applicable to the hearing-impaired population.

- And, it is important to recognize that different populations require different teaching techniques in the classroom. There needs to be a continuous quest for effective teaching strategies, or differentiated instruction, that will respond to the diversity of the classroom (Subban, 2006) while teaching print-language mapping to both hearing and hearing impaired second language learners (Goldin-Meadow & Mayberry, 2001).

Researchers

- Additional research needs to be done on how deaf/HI readers map their knowledge of sign language onto print. It is this knowledge that will aid in improving instruction and will be best used to turn signers into better readers
(Goldin-Meadow & Mayberry, 2001). The knowledge gained from understanding the process of how the deaf reader has the potential to inform us about all readers.

- More research needs to be done to discover additional reading strategies for the HI. The lack of phonological awareness, the possibility that they map sign to print differently and the suggestion by Goldin-Meadow and Mayberry (2001) that the HI may learn differently necessitates further research.

Vocabulary growth is gained largely through learning in context (oral or written). Through pre-teaching, direct instruction, and repetition of vocabulary in verbal context gains can be made. Second language learners need to boost vocabulary growth, particularly during the sensitive years of cognitive development, and especially in light of the fact that written text is the largest contributor to thought. Further research needs to be done to develop additional strategies and instructional practices that will fortify the learning of lower achieving students, since the aforementioned strategies have yet to close the Mathew Effect (Penno et al., 2002).
REFERENCES


APPENDIX A
This website began as my Master’s Project at California State University, Chico, to bridge the gap between the advanced signing DVD/VHS tape in the Gallaudet’s Shared Reading Project and the introductory vocabulary and phrases of popular children’s books in ASL.

This site is especially intended to aid the hearing parents little or no exposure to sign language in an effort to build ASL second language vocabulary, foster their confidence in the manual skill, and give them the ability to support their hearing impaired child’s emerging literacy by reading in the child’s second language and signing to the child.

In each Shared Reading Project book bag there is a popular children’s book, an occupying DVD/VHS tape signing the book page by page, a book marker with tips for reading to your deaf/hearing impaired child, a sheet with suggested activities after reading, and an insert explaining the origination, purpose, and design of the program. As a hearing family member, it was difficult to follow the DVD and comprehend the story since the manual communication system differed from that of an aural/oral language communication system.

The website is a key or gloss of the signed DVD into a series of corresponding English word to sign equivalents. Several points are important to note:

(2) ASL is not English in manual form, or a collection of pictures in the air (iconic) with no grammatical structure.

(3) ASL is considered a natural language with its own formal linguistic system. This supports the argument that reading English text to the hearing impaired, pre-emergent reader must be done from a bilingual approach.

(4) Language does not have to be oral or written to qualify as a language

**HOW TO USE THIS SITE:**

Click on the tab at the top entitled “Book Titles”

Select the title of the book that coincides with the Shared Reading Project book bag

Depending on your technology:

- Watch the DVD as you follow along on the website & pause as needed. This can be done with or without the book open.

- View the DVD first & follow along on the website with the open book.

Under each signed picture or animation are 1 to 3 lines of text:

1. Small bold all-capital letters is the English gloss or corresponding English word for each ASL sign used in the DVD. There may be an occasion where there will be an equal sign (=) between two or more words. The English word on the left is the literal ASL sign denoted. The word(s) on the right will be the English interpretation or connotation for viewer clarity.

2. Italics represents any additional non-manual signs (facial or body gestures) made on the DVD that will aid the viewer in following along.

3. In addition, non-manual signs may be represented by the a letter or letters at the end of an underscore above the English gloss (i.e., _________wh )

4. Words in Red type identify the linguistics of ASL communication such as the rules governing the formation of ASL sign structures and the internal structure of the ASL language. Each of these word or word phrases in Red are links to either the tab entitled “ASL Basics” or “Linguistic Concepts”.

Click on the tab at the top entitled “Fingerspelling” for the complete manual alphabet of 26 distinct hand configurations representing the English alphabet. Fingerspelling, separated by hyphens, appears in the gloss when used on the DVD by the Reader.
Click on the tab at the top entitled “ASL Basics” for an overview of basic rules governing the language or phonology of ASL. Red text below an ASL picture sign from a children’s book is hyperlinked to this tab. To return to the story after clicking on a Red hyperlink, you must use the GO BACK arrow at the top left corner of your web browser page.

Click on the table at the top entitled “Linguistic Concepts” for rules governing ASL morphology and syntax. Each corresponding gloss in Red from a children’s book is hyperlinked to this tab. To return to the story after clicking on a Red hyperlink, you must use the GO BACK arrow at the top left corner of your web browser page.

Move through the corresponding webpages by using the NEXT PAGE and PREVIOUS PAGE at the bottom.
Children’s Books

*Good Night, Gorilla*
by Peggy Rathmann

*Goodnight Moon*
by Margaret Wise Brown
Open Book>>
GREAT  GREEN  ROOM

RED  BALLOON
looking up in the direction of

TELEPHONE

wh-q

PICTURE  NEXT  WHAT
At this point, the speaker gestures "one moment!"
MOON
COW
JUMP

perform the motion 'wear' the moon during signing

Topic Comment

THREE
LITTLE
BEAR

SIT
demos sitting positions of bears

Numbering System
Noun-Verb Pairing
Verb Tense-Progressive

<< Previous Page   Next Page >>
TWO
LITTLE
CAT
points to cats in book

TWO
MITTEN
points to mittens in book
Language Variants or Dialects

LITTLE
T-O-Y
HOUSE
LOOK AT...

ONE
LITTLE
MOUSE
gestures motion of the mouse

<< Previous Page  
Next Page >>
TABLE
demos round and location of table

EAT
BOWL
demos round and location of bowl on table

BRUSH
COMB
After each sign, demo position on table where each item resides. Then, simulates using the item shown. (demos round and location again)
Space Absent Referent

OLD
QUIET
GRANNY
RABBIT
continuous body motion of rubbing

KNIT
WHISPER
...while still moving
RABBIT  SIT
representing baby rabbit sitting in bed...

BLANKET OR COVER

LOOK AROUND...

GOODNIGHT  ROOM  # ALL
Compound Sign

sweeping over the room
Lexicalized Fingerspelling
RABBIT  LOOK AT...

LAMP  GOODNIGHT
turns toward light and points to where light should be...

LOOK UP AT...

RED  BALLOON  GOODNIGHT
Initiated Sign
looking up in the direction of...

BEAR  THREE  SIT  GOODNIGHT
 haven sitting position of beans
Noun-Verb Pairing
RABBIT
baby rabbit locates - turns towards cats

SIT

LOOK...

TWO

CAT
points to location

GOODNIGHT

LOOK AT...
lootens - turns towards mittens

TWO

MITTEN
points to location

GOODNIGHT
RABBIT

LOOK AT...

CLOCK

GOODNIGHT

hands show position of clock
points to location of clock after signing

LOOK AT...

TWO

SOCK

GOODNIGHT

points to location of socks before signing
points again after signing

<< Previous Page  Next Page >>
RABBIT  SIT  LOOK AT...

LITTLE  HOUSE  GOODNIGHT
points to location of house

LOOK AT...NOTICE

MOUSE  RUN  GOODNIGHT
points to location of mouse before signing
points to location again
MOUSE
pointing motions mouse leaving

LOOK AT...

TABLE
demonstrates round placement of table

COMB

GOODNIGHT
draws the long narrow position on table after signing, points to position on table

BRUSH

GOODNIGHT
draws narrow position on table after signing, points to position on table
RABBIT

LOOK AT...
baby rabbit locates granny rabbit...

OLD

GRANNY
points to position of old lady rabbit
body motion of granny rabbit rocking ...

RABBIT

KNIT

WHISPER

GOODNIGHT
baby rabbit saying goodnight to granny rabbit

<< Previous Page       Next Page >>
**RABBIT**

**SIT**

**LOOK AT...**
points to 3 individual stars

**WINDOW**

**STAR**
points to several stars

**GOODNIGHT**

**LOOK AT...**

**A-I-R**
spreads both hands in front to show it's everywhere
points to "air" everywhere

**GOODNIGHT**
RABBIT
SIT
LOOKS AROUND...
points multiple times in two different directions
pulls covers tight to chin with BIG eyes wide open

NOISE
EVERYWHERE
points to all things everywhere as screen fades
GOODNIGHT

<< Previous Page
The End
Sign Language
Dr. Bill's ASL fingerspelling and handshape art:
Lifeprint.com Collection ©

Usage notes: You are welcome to use a few of these letter graphics (for example: to spell out your name or a certain topic) on your website or to spice up your printed projects. Please be so kind as to NOT copy all 26 letters and re-publish to your own website as your own collection. Instead, feel free to link to this page. Thanks!

Absent Referents

A signing technique used to refer to something or someone that is absent during a conversation. This applies to pointing and directing signs of both verbs and pronouns at the designated empty space that someone or something being discussed is assigned. This pointing to the empty space is referred to as the ‘locus’ and signs directed as the loci becomes associated with the missing referent and treated just as if they/it were present. Once the referent is established, it is important that the signer is consistent with pointing to the loci. The pointing to the entity allows for a connection to be made between the entity and the verbs or actions being discussed; a semantic representation. The area is generally not a single point into space but a three dimensional spatial area that takes on the size and shape of the entity.

Directionality

SEE Pronouns, Indexing, and/or locative verbs under Verbs.

Fingerspelling

Fingerspelling is a manual representation for each symbol of a written language and a direct result of written language in which it has contact with. For each of the 26 letter symbols of the English alphabet there is an ASL corresponding sign. Each corresponding sign has its own segmental structure and handshape, location, and orientation. According to Lucas and Valli, “fingerspelling is a unique outcome of language contact” with the majority language, in this case, English (pg 62). When produced slowly and distinctly, they are glossed with a hyphen between each corresponding letter such as: M-O-O-N.
Hand Positions

Dominant Hand - The hand most preferred for most motor tasks. One-handed signs use the dominant hand, play a much larger role, and execute more complex motor skills. Signers can be either right-hand or left-hand dominant with respect to signing. For example, a larger percentage of the population is right-handed, therefore, signers with right-hand dominance means their right hand will assume the active role most of the time, while the left hand is held still, passive.

Passive Hand - Might best be described as the non-dominant hand or the hand that assumes the passive role. For dominant right-handed signers, the passive hand would be the other hand, the left hand.

Symmetry Condition - One of the formations on the structure of ASL and under certain conditions. This condition is when both hands move in a two-handed sign then both hands will have roughly the same hand shape and type of movement. It is common to have the same hand shape and movement in alternating directions. For example: SHOES, SOCKS, WHICH, or TALK. Some pairs of signs that use exactly the same handshape, but with reversed movement. Some of these signs are used as propositions and some as verbs. These pairs of signs are usually opposites of each other and often are referred to as ‘kinship signs’. For example, ON OFF; OPEN CLOSE

Dominance Condition - One of the formations on the structure of ASL and under certain conditions. This condition is when each hand has a different hand shape, then only the active hand can move and the passive hand serves as a base and does not move such as: GOODNIGHT or LEARN.

Indexing

Indexing is a term used when the index finger of the dominant hand is used to point at someone or something during a conversation that is either present or absent. The use of point to a space is a referential function used with verb agreement between subject and object or when using pronouns and carries locative information of the object or person.

Initialized Sign Signals

Stokoe is credited with developing the first system for describing signs where the signs could be analyzed in the same way that spoken language is broken down into written units. In an ASL dictionary, convenient labels are used to describe the three aspects of a sign: tabula or tab (T), designator or dex (D), and signation or sig (s). Stokoe proposed that signs have parameters. One of the parameters was that of the handshape of the active hand (designator or dex). Therefore, it is not uncommon to see the word ‘initial-dez’ (initial handshape) as in Valli, Lucas, and Mulrooney’s text, to refer to initialized signs. These signs are coinages to translate a particular English word and have the first letter of that word as the handshape (dez) of the manual alphabet configuration. For example, the
ASL sign for the written English word for the color YELLOW is the first letter ‘Y’ or ‘W’ for WATER.

**Internal Structure**

One of the features of all languages is that they have symbols that can be broken down into smaller parts. This **phonology** is the study of the smallest **contrastive units** of a spoken language. In English, the smallest contrastive units are the phonetic sounds letter symbols represent and how they are structured and organized, for example, pat and bat. The contrastive difference is a single letter (smallest unit) of each word creating an entirely different phonetic sound and, therefore, a completely different meaning.

In contrast the phonology of ASL is how signs are structured and organized. It is composed of five basic parts or parameters. “Signs can share one or more of the same parameters. It is the difference in one parameter that is responsible for the difference in the meaning” of a sign (pg. 17). The parts or parameters are:

- Hand shape
- Location
- Movement - signs are composed of sequences of movements and holds. Each movement or hold is known as a **segment** which can be added or left out depending on the **morphology** and/or **syntactic** sequence.
- Palm orientation
- Non-Manual Signals - “Non-manual signals are the facial expressions that accompany certain signs. Many signs in ASL require a **non-manual signal** in order to be produced correctly” (pg. 19).

**Lexicalized Fingerspelling**

The term”...'lexicalized’ means “like a word” or “word-like”, that is, like an independent unit. Lexicalization describes the process of **fingerspelling** because the separate signs do seem to become like one” (pg. 65). Often there is a “tendency to reduce the number of signs as they become more like other ASL signs” abbreviating and consolidating the movement eventually creates a shortened ASL version of the multiple signs (pg. 66). In glossing, lexicalized fingerspelling is preceded by a pound (#) sign such as in the sign #ALL.

Language evolves and changes in all languages. One common type of semantic change in the English language is a type of reduction called contractions. An equivalent example in the English language to lexicalized fingerspelling in ASL would be the written and spoken contraction of two words where an apostrophe replaces the missing letters such as in the words: can + not = can’t.
Loan Signs

“When two languages are in contact with each other...they may borrow from each other” (pg. 67). English has borrowed from many languages such as pizza (Italian), algebra (Arabic), and quiche (French).

ASL also borrows from other sign languages. The best examples are the “signs for the names of countries that are now being used instead of the American signs for those countries such as: Japan, Italy, and China. This is a “result of American deaf people coming in contact with deaf people from those countries” (pg. 67).

Movement Epenthesis

Just as words in written language occur in sequence in a sentence so do individual signs occur in sequence. Keep in mind that all signs are composed of movements and holds. When several signs occur sequentially, “sometimes a movement segment is added between the last segment of one sign and the first segment of the next sign” (pg. 40-41). This process of adding a movement segment is called movement epenthesis which creates fluency. (SEE illustration)

Non-Manual Signals

“Non-manual signals are the facial/body expressions that accompany certain signs. Many signs in ASL require a non-manual signal in order to be produced correctly” (pg. 19). Non-manual signals can also denote basic sentence types. An example of a symbol used during translation to display non-manual signs might be _________ wh-q to denote a who, what, where, when, why sentence. A line would be placed over the word(s) that require(s) the non-manual sign. In the case of a ‘wh’ questions, the marker tells the reader that the non-manual signals that would accompany the sign would be: eyebrows squinted, head tilted; body may be forward; shoulders may be raised. Although a different abbreviated symbol may be applied, this can also apply to negations, commands, topicalization, conditionals, and other types of questions sentences. For more information SEE Internal Structure.
**Numbering System**

Visitors can find a much more in-depth description of the numbering system at [LifePrint.com](http://LifePrint.com), along with pictures.

Numbers 1 through 5 are made with the palm facing in toward the body.

- 1 begins with the index finger extended
- each incremental increase progresses by extending the middle finger for 2
- extending the thumb for 3
- tucking the thumb into the palm and extend four fingers for 4
- and extending all fingers for the number 5

Number 6 through 9 are made with the palm facing forward.

- 6 is made by the thumb touching the little finger
- 7 is made by the thumb touching the ring finger
- 8 is made by the thumb touching the middle finger
- 9 is made by the thumb touching the index finger

10 is made with a shaking fist and thumb extended, as in the sign for ‘A’

11 though 13 require the palm to begin by facing the body and flick the wrist out as the fingers touch

- 11 is made by touch the thumb to the index finger and flicking the wrist out
- 12 is made by touching the thumb to the middle finger and flicking the wrist out
- 13 is made by touch the thumb to the ringer finger and flicking the wrist out

14 is made by tucking the thumb into the palm and waiving the four fingers

15 is made by waiving the four fingers with the thumb extended

16 through 19 are made by combining the number 10 (shaking the first with thumb extended) and flicking the wrist out and forming the numbers 6 through 9 (touching little finger to the thumb and so on)

20 is touch and repeatedly closing the index finger and thumb together (as in the sign for ‘bird’)

For more information regarding the ASL number system, refer to Valli, Lucas, and Mulrooney.
Segmental Structure

Signs are composed of sequences of movements (M) and holds (H). Each movement or hold is known as a segment which can be added or left out depending on the morphology and/or syntactic sequence. For example, the sign GOODNIGHT consists of a Hold - Movement - Hold (H M H). SEE also Internal Structure.

Sequential Signs

“All signs have only one handshape, one movement, one location, one palm orientation, and/or one non-manual signal. For example, the sign MOTHER has only one handshape, one location and one palm orientation with no movement or non-manual signal...” (pg. 28-29). (SEE Internal Structure).

However, many ASL signs use multiple internal structures: handshape, location, palm orientation, or non-manual signal in a sequence for one sign. For example the sign DIE or DEAF require multiple internal structures (movement, location, and/or palm orientation) and a change in one of them.

Location DEAF - location changes from ear to chin

Palm Orientation DIE (1-handed) - palm orientation down to palm up

Signing Space

Signs may be articulated freely in space, or they may involve contacting or including part of the body. In general the areas in which signs are made are within the parameters between the head and slightly below the waist and slightly beyond the width of both shoulders.

Fingerspelling takes place within the neck/jaw to shoulder height/width area. (SEE illustration)

Symbol Forms

Arbitrary - In any communication system, arbitrary means that the actual forms of the symbol or hand shape in sign does not reflect the form of the thing or activity it symbolizes such as: PLEASE or THANK YOU.
Iconic - In sharp contrast, iconic means that the forms of a symbol or hand shape in sign is an icon or picture of some aspect of the thing or activity being symbolized such as: CUP, CAT, or CRY.

Considered a Universal, all languages spoken or signed have arbitrary and iconic symbols. In English, the symbols for the word c - a - t are arbitrary. Neither the appearance of the symbols or their sound (kaet) reminds us of a cat. However, an example of an iconic symbol in spoken English would be choo-choo for train. Although the symbols for the words do not look like a train, their phonetic sounds mimic the sound of a train.
Classifier

SEE depicting under Verb Tense

Compounds

Morphology is the study of word formation. One of the many ways to form words or new words is through combining two or more free morphemes in English and putting them together creating compound words. The patterns that arise when two or more words are put together are:

1. they form a new word with a new meaning
2. and the stress is usually on the first word of the compound while the stress on the second is usually reduced.

Examples in English language are: gréenhouse, bláckboard, and bláckberry

In ASL when two words come together to form a compound predictable changes or patterns also take place as the result of morphological and phonological rule applications. The morphological rules includes:

1. initial contact with the body will be the portion of the sign that is maintained
2. internal movement or repetition of movement is eliminated
3. and often the signers weak hand anticipates the second sign in the compound.
At least three phonological rules may be applied whenever signs are produced in sequence and do not result in any changes in meaning:

1. movement epenthesis
2. hold deletion (referring to sign movement)
3. assimilation - when a segment of one sign takes on the characteristic of another segment (usually just before or after)

<table>
<thead>
<tr>
<th>ASL Compounds</th>
<th>English Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLUÊSPOT</td>
<td>bruise</td>
</tr>
<tr>
<td>FACÊNEW</td>
<td>stranger</td>
</tr>
<tr>
<td>GOOD̂NIGHT</td>
<td>goodnight</td>
</tr>
</tbody>
</table>

**Contrastive Unit**

Basic building blocks of the English sound system are phonemes. Put another way, the basic phonetic parts that can be isolated and compared. When compared or contrasted against each other to assess the different sounds they make, it is the difference in the sounds that influence the symbols different meanings between two words such as /t/: tip and lip.

The basic building blocks of ASL are the five basic parts or parameters to each sign: handshape, movement, location, orientation, and nonmanual signals. When comparing one sign against another, “it is the difference in one parameter that is responsible for the difference in meaning” (pg. 17). For more information regarding contrastive units see page 30-31.

**Depiction**

SEE depicting under Verb Tense

**Language Variants or Dialects**

The systematic differences that exist within a particular language are often referred to as language variety or language variation. When a group of speakers of a particular language differs noticeably in its speech or sign from another group we say that they are speaking another dialect. Factors affecting different dialects can be caused by regional, cultural, or ethnicity to name a few. This explains why a hearing impaired American citizen using American Sign Language (ASL) is unable to converse with a British citizen using British Sign Language (BSL). Even though the hearing majority of each country has little trouble understanding each other's spoken and/or written English dialect, hearing impaired have a more difficult time understanding each other due to a much larger distance between the differences of the dialects.
Lexical

The vocabulary of a language and their grammatical categories the words and/or signs function as within a sentence.

Minimal Pairs

In a spoken language, such as English, a minimal pair is defined as word pairs that could be pronounced exactly the same way except for the one letter sound that differs between them. This sound difference is what creates words that will represent different meanings, for example, lack and rack.

It is important to note that the sound-system of spoken or written English is not the same as the letters of English. For more information on the sound system of English see pages 258-279 in Valli, Lucas, and Mulrooney’s text, Linguistics of American Sign Language.

In a manual and visual language such as ASL, a minimal pair is defined as any two signs that will share three out of the four production parameters: handshape, palm orientation, movement, and location. The change of only one of these parameters will represent different meanings, for example, father / mother (handshape, palm orientation, movement are the same; location is different).

Morpheme

“The smallest meaningful unit in a language is a morpheme. Some morphemes can occur by themselves, as independent units” (pg. 49). These are free morphemes such as: cat and sit in the English language. Other morphemes are considered bound morphemes because they cannot occur as independent units alone and must occur with other morphemes. Examples of bound morphemes are affixes such as: -s (cat + s = cats). Smaller parts combine and join to make larger wholes. In the English language, unbound morpheme + bound morpheme = word.

In ASL, examples of free morphemes are CAT and LOUSY. Examples of ASL bound morphemes that must occur with other morphemes is the ’3’ handshape in the ASL signs of THREE-WEEKS and THREE-MONTHS. In ASL: handshape + movement + other grammatical features = sign(s)

Morphology

“Morphology is the study of the smallest meaningful unit in language and of how those meaningful units are used to build new words or signs” (pg. 49). Put another way, morphology is the study of word or sign formation. Examples of meaningful units in English are all affixes (e.g., -s, -er, -un, -ful, or root words such as sit, compound words, borrowings from other languages, or a changing of the stress (‘) in a word as in contest/contest converting a verb into a noun.
In ASL morphology, “whole signs that already exist are used to derive new signs” such as: “verbs used to derive nouns” (SIT and CHAIR), two signs put together to form compounds (BRUISE and STRANGER), how English orthographic symbols are represented by ASL fingerspelling signs” and lexicalized (#ALL), and “how signs from other sign languages are borrowed into ASL (ITALY and CHINA)” (pg. 70).

**Noun-Verb Pairing**

A universal property, a feature shared by all languages, is that of related nouns and verbs. For example, in English, this common linguistic pattern is seen in the words teach (verb) and teacher (+er = noun) or crystal (noun) and crystalize (+ ize = verb). This word building strategy is accomplished by adding an affix, a bound morpheme, to a particular position on a word stem.

Understanding the process of morphology in the majority spoken/written language, English, is helpful in understanding ASL morphology. “ASL also has verbs and nouns that show a regular pattern” in word building (pg 51-54). In place of the change in written symbols, it requires a change in one of the parameters, movement. Where the parameters of handshape, location, and orientation remain the same, it is the movement that creates the difference between the meanings of the two signs by repeating or duplicating. Examples of verb and noun pairs are:

<table>
<thead>
<tr>
<th>VERB</th>
<th>NOUN</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Movement:</strong></td>
<td><strong>Movement:</strong></td>
</tr>
<tr>
<td>hold-movement-</td>
<td>hold-movement-</td>
</tr>
<tr>
<td>hold H – M - H</td>
<td>movement H – M - M</td>
</tr>
<tr>
<td>SIT</td>
<td>CHAIR</td>
</tr>
<tr>
<td>FLY</td>
<td>AIRPLANE</td>
</tr>
<tr>
<td>SELL</td>
<td>STORE</td>
</tr>
</tbody>
</table>

This repetition or reduplication is the morpheme in ASL. In ASL, there is not a morpheme form added to the word SIT to derive the noun CHAIR. The morpheme, SIT, is simply repeated.

**Numerical Incorporation**

Numeral incorporation in ASL is found with the signs of: WEEK, MONTH, DAY, DOLLAR AMOUNT, PLACE IN A RACE, EXACT TIME, PERIOD OF TIME, and HEIGHT with some limitations on how high the numbers can go. For example, using the sign for WEEK requires two hands and by changing the handshape of the dominant hand from 1, 2, or 3 the number of weeks referred to changes. These handshapes, meaningful units or bound morphemes, cannot occur alone. Combined, they create a new meaning. “The location, orientation, and nonmanual signal remain the same. We can say that the signs
for **TWO-WEEK** has two meaningful parts (morphemes). One is the part that includes the segmental structure -- the holds and *movement* -- and the *location*, *orientation*, and *nonmanual signal*. It means **WEEK**. The other meaningful part is the *handshape*, which has the meaning of a specific number” (pg. 70-72). By adding the numerical *handshape* it makes the sign **WEEK** plural (in English: **week** + **-s** = **weeks** / in ASL: **WEEK** + **THREE** = **WEEKS**)

*Palm orientation* and *movement* is important in indicating the number of things, objects, or persons being discussed depending on the situation. ASL does not tend to add on to signs as a spoken and written language does such as adding the affix or bound morpheme of the inflectional **-s** to make nouns plural. Instead, for nouns ASL often uses noun modifiers such as: determiners (**A**, **MANY**, **FEW**), numbers, or reduplication to indicate a signs ins plural.

**Phonemes**

The basic symbols and the sounds attached to those symbols represent the phonology of the language. These differ from letters of an alphabet in that phonemes relate to pronunciations, not spelling. For example, the word **graph** phonetically could appear as **graf**. In English this would be a symbol or symbols representing a letter or group of letters each producing a single phonetic sound. In spoken languages, phonemes combine to produce communication.

In ASL, “sign phonology does not involve sound patterning or vocally based features...” (pg 336). However, according to Valli, Lucas, and Mulrooney, the definition of phonology has been expanded to mean the “patterning of the formational units of the expression system of a natural language” (pg 336), and it is the use of spacial contrasts that “function at the sub-lexical level in signed languages to indicate phonological contrasts” (pg 336). “*Location* is one of the formational units of sign language phonology, claimed to be somewhat analogous to consonants in spoken language” (pg 336). For more in-depth information on this topic SEE Valli, Lucas, and Mulrooney.

**Phonology**

Phonology is defined as the study of the smallest *contrastive unit* of any language that does not have meaning. In an oral and written language, English, phonology is equivalent to sounds assigned to the letter symbols. For a manual language, ASL, it is how sign symbols are structured and organized.

**Plural (Marker)**

SEE **Numerical Incorporation**
Pronouns

Semantically, in ASL, the pronoun encodes a single entity, unspecified for gender or case. In ASL, the index finger depending on the directionality, movement, and handshape when pointed represents the pronouns: I, ME, YOU, HE, SHE, IT, WE, YOU-ALL, and THEY. Just as in English, there are number differences referring to one or more persons. Indexing combined with a sweeping motion and/or numerical incorporation can represent the pronouns: THEY, THOSE, THEM, THESE, THOSE-THREE, THOSE-TWO, WE-THREE, THE THREE OF YOU, and THE TWO OF YOU. Possessive pronouns are accomplished by changing the sign from the pointing the index finger to a flat open palm directed at the person who has possession. For specific information on the signed details of each of these pronouns, see Valli, Lucas, and Mulrooney's textbook.

Just as in English, ASL has subject and object pronouns in the first, second, and third person. Although depending on whom you ask, second and third person pronouns are strongly debated for ASL. When glossing ASL into English, pronouns are represented as PRO.1, PRO.2, and PRO.3 correlating to first, second, and third person pronouns.

- However, unlike English, ASL does not indicate masculine and feminine gender in the third person as in the signs HE and SHE. This is accomplished by the directionality of point the index finger toward the referent (absent or hypothetical entity once established or present entity). Once the referent is established, it is important that the signer is consistent with point to the loci.

- Another discrepancy between the languages English and ASL is English distinguishes between subject and object pronouns, ASL does not. In ASL, the distinction between subject and object pronouns is accomplished through the directionality of the signs and the order they are produced or the syntactical structure. The point helps to establish a connection between an entity and within a semantic representation and an entity in the immediate environment of the signer. Once the referent is established, it is important that the signer is consistent with point to the loci.

Semantics

The study of the meaning of words within a rule-governed system. It is a common feature that every language and the meaning of its words or signs are determined by the users of a specific community.

Dictionaries are considered the definitive source of word or signed meanings in all linguistic cultures. It is important to bear in mind that dictionaries are not a comprehensive resource for all words or signs, rather they are only a sampling or minimal resource and the authors only reflect the users of a particular community.

Sign language dictionaries are unique in that they are intimately related to the majority written or spoken language making them bilingual out of necessity. There is the
“potential problem...that the same sign may have different English glosses assigned to it or different signs may be assigned to the same English gloss. Therefore, the meaning of the sign may not always be clear from the gloss assigned to it” (pg 142).

Syntax

The rules within a language that governs sentence structure. This is often referred to as grammar or the grammatical structure of sentences.

In English, there are eight *lexical* categories that compose grammatical sentence structures;

- nouns
- pronouns
- verbs
- adjectives
- adverbs
- prepositions
- conjunctions
- and interjections

The same single word can function as more than one part of speech within two separate sentences. Depending on how it is used, the linguistic rules will dictate its placement within each sentence relative to other words in the sentence.

\[ \text{Word + word + word + word + word.} = \text{sentence} \]

*John paints* on the canvas. (verb) *Paints* come in many colors. (noun)

In ASL, there are two categories of lexical structures, major and minor.

The major lexical categories are:

- nouns
- predicates (includes verbs, however, some adj & adv function as predicates and ASL does not always require a verb)
- adjectives
- and adverbs

The minor lexical categories are:

- determiners (DET: pointing signs always with the index finger and always occur before/after/or simultaneously with a noun)
- auxiliary verbs (tend to show up at either the beginning or end of a sentence -- accompany other verbs/predicates to add tense and aspect information)
“Morphemes can be added to auxiliary verbs by incorporating nonmanual signs” (brow up, lips drawn etc) (pg. 120).

- prepositions (there are fewer preposition in ASL and many act like predicates, not preposition (SEE Example*). The sign ‘AT’ functions like the English preposition.
- Conjunctions (consist of BUT, UNDERSTAND, OR, and PLUS (SEE Example*)
- and pronouns (SEE Pronouns)

\[ \text{sign + sign + sign + sign + sign = sentence} \]

\*OLD FEELING STILL INSIDE-MY-CHEST \*YOU BRING TV SHELF PLUS SOFA

Adj N Adv (Prepositional) Pred PRO.3 Pred N N Conj N

I still have those (same) feelings inside. You bring the television, shelf, and sofa.

Topic-Comment

Two of the universals for all languages are the fact that

1. they all contain nouns and predicates (verb group)
2. and they all have a basic word order when structuring sentences. For English the general word order is:

\[ \text{Subject + Verb + Object (SV)) = Sentence} \]

Mother likes the neighbor.

The girl is funny.

For simple sentences with transitive (verbs with an object) plain (SEE Verbs) verbs in ASL, the basic word order follows the same patterns of:

\[ \text{Subject + Verb + Object (SVO) = Sentence} \]

MOTHER LIKE NEIGHBOR

With intransitive verbs (those without an object) the sentence pattern is...

\[ \text{Subject + Verb (SV) = Sentence} \]

GIRL FUNNY

However, it is common for ASL signers to emphasize important information or the topic of the sentence through the use of topicalization by placing the subject or object first accompanied by nonmanual signals and followed by the verb. This is commonly referred
to as **Topic-Comment** structure. The **Topic** = subject or object; and the **Comment** = predicate (verb or verb group).

**Topic/Object + Subject + Comment (Verb Phrase)**

**BALL, JOHN THROW**

If the topic of the conversation is taking place at any other time than the present tense, than the signer would establish the tense (past or future) first in the sentence structure and proceed to Topic-Comment.

**Time + Topic + Subject + Comment (Verb Phrase)**

**YESTERDAY BALL, JOHN THROW**

A pronoun can be placed between ‘topic’ and ‘comment’ (topic - (pronoun) - comment).

**Time + Topic + S-PRO.3 + Comment**

**YESTERDAY BALL, SHE THROW**

**Universals**

Universal properties are characteristics that are shared by all languages. All languages have shared features and at least some linguistic properties, called ‘universals’, common to all languages. For example, all languages are composed of symbols. However, not all languages share every linguistic property.

**Verbs**

Valli, Lucas, and Mulrooney use these terms in their text and can be found on pages 76-82

- **Plain** - These verbs are produced in a static *location* that cannot be altered without changing the meaning of the sign. Therefore, accurate *location* is key. “The *location* does not have any independent meaning and plain verbs do not contain information about the subject or object of a sentence” (pg. 76). Examples are: **EAT, HAVE, LIKE, LOVE, or FORGET**

- **Indicating** - These verbs are more dynamic than plain verbs because they include the parameters of *location, movement*, and sometimes *orientation*. They move toward specific people, objects, or spatial location, and in doing this, they incorporate additional information about the subject and object of the sentence. Separate signs for the subject and object are often omitted because the direction or movement of the verb contributes this information. (SEE illustration)
- **reciprocal verbs** - are a type of *indicating* verb that adds information by showing reciprocating action. For example, each hand can represent two separate individuals doing the same action as in **LOOK-AT EACH OTHER**.

- **locative verbs** - are a type of *indicating* verb. Unlike the plain verb, the *location* parameter is how the sign is made and the actual direction or *location* of the sign contains specific meaning such as in the signs **LOOK**, **THROW** or **PUT**. The direction of the sign indicates the direction in which the object is acted upon such as: up, downward, around, or toward a particular area. *Handshapes* of locative signs do not have independent meaning.

- **depicting verbs** - until recently these were more commonly referred to as *classifier predicates*. This category of verb can be divided into three main types and have the distinct ability to convey two types of information: (1) action or state of being and (2) relay information about certain aspects of their meaning. The three main types of categories that can be used synchronically during signing are:
  - those used to show or establish where something or someone is in space
  - those used to show what something looks like, how it is shaped, or how objects or people are arranged in relation to each other. In addition, this type of verb can provide two types of information: physical condition or the objects location and where it extends to as in driving a car (object being discussed) up a hill on a bumpy road by the parameters **movement**, **location**, and **orientation**.
  - those that show movements or actions from one point to another

Although these terms are useful in describing the different types of verbs in ASL, not all linguists use these terms.

**Verb Tense**

In English there are a total of 12 verb tenses classified as: **present**, **past**, and **future**, with **simple perfect** and **progressive** forms for each.
In ASL, there is present, past, and future determined by an imaginary time line that splits the body perpendicular. The area near the body is present, in the back of the body is the past, and further in front of the body is future. The tense or time of the event is established at the beginning of the signer’s sentence. In addition, there are lexical signs (LATER, NOW, MORNING, YEAR, TODAY, TOMORROW) used to indicate the time of an event.

“Verbs can include information about the subject and the object in the orientation or location parts of their structure” (pg. 111). Palm orientation and movement is important indicating the number of things, objects, or persons being discussed depending on the situation. ASL does not tend to add on to signs as a spoken language does, such as, adding the affix or bound morpheme of the inflectional -s, -ed, or -ing to make third person agreement with verbs (walks, plays), past tense (walked, played), or progressive action (walking, playing). Rather than add on to verbs, ASL tends to change the fundamental structure, as in the case of temporal aspect, or change one part of one segment of a sign, as in the case of indicating verbs.

“-s” third person agreement affix: This written symbol does not exist in ASL. However, “Verbs can include grammatical information about the subject and the object in the (palm) orientation or location parts of their structure” (pg. 111). For example in English the sentence, He Walks to the store., would be STORE HE WALK in ASL. The agreement is in the palm orientation, location, and/or directionality of the referent to “HE”.

“-ed” past tense affix: This written symbol does not exist in ASL. However, in order to establish past tense the signer uses a past tense marker or sign at the beginning of the sentence or topic such as dominant hand waiving over the shoulder or by use of a lexical sign (LATER, NOW, MORNING, YEAR, TODAY, or TOMORROW). Once established, the time frame or tense is understood within the context of the conversation until the tense is changed to a different time frame.

“-ing” progressive verbs affix: There is no affix or bound morpheme of the inflectional -ing in ASL. Progression is demonstrated by reduplication or through implication of other lexical signs. For example in English the sentence, Peyton is swinging., could be PEYTON SWING. Repeating the sign indicating a process.

“to be” verbs: “Many languages do not use the verb to be. In those languages, a predicate may consist of simply a verb, a noun, or an adjective as in ASL. For example in English the sentence, The girl is happy, would be the equivalent of GIRL HAPPY in ASL. The ASL sentence consists of the noun, GIRL, and a predicate that is an adjective, HAPPY. The parts of speech verbs, nouns, and adjectives can be predicates in ASL” (pg 90).
Sharing Literacy through ASL

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The definitions and linguistic information contained in the tabs, ASL Basics and Linguistic Concepts, in this website, Sharing Literacy through ASL, could not have been done without the permission granted by the publisher, Gallaudet University Press, to adapt and reprint information from the text, Linguistics of American Sign Language: An Introduction, 4th ed., by Clayton Valli, Ceil Lucas, and Kristin J. Mulrooney (Washington, D.C.: Gallaudet University Press, 2006): (pg. 3-5; 12; 17; 19; 28-31; 40-41; 49-54; 56-60; 62; 65-67; 70-72; 76-82; 84-86; 111; 113-124; 141; 161; 196; 200; 203; 253; 258-279; 313; 338-339; 370-371; 374-375; 440-442). Copyright 2006 by Gallaudet University.

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REFERENCES

Hello Patricia...

It was nice chatting with you yesterday. I didn't see an attachment to your email. Would love to see what you are proposing.

However, I don't think its a problem for you to work on your idea as a part of your thesis. You're welcome to describe it as an idea for supplementing the SRP bookbags. We can't say at this point if it is something that we'd be interested in developing with you.

As I mentioned yesterday, I think a video supplement would be more effective than a flyer or flash cards. I do appreciate hearing your experience and we will be looking into ways to provide vocabulary support for the children's books used in the bookbags.

I will share your concerns and your ideas with the family resources planning group and see if this is anything that they would like to pursue with you.

Again thank you for your call yesterday and please let us know if there is anything else we can do to support you and your family.

betsy
Elizabeth Meynardie
Manager of Training and Professional Development
elizabeth.meynardie@gallaudet.edu
(202) 651-5855
Planning, Development and Dissemination
Laurent Clerc National Deaf Education Center
Gallaudet University