EMERGENT LITERACY DEVELOPMENT: 
CASE STUDIES OF FOUR DEAF ASL-ENGLISH BILINGUALS

by

Jennifer D. Herbold

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DEDICATION

This dissertation is dedicated to Lindsay, Dustin, Kieran V., Kieran E., Adrien, and Deaf children everywhere.

May you forever love to read.
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ABSTRACT

The research is clear; given the opportunity to do so, children begin transacting with print at very young ages (Ferreiro & Teberosky, 1982). Deaf children with full access to language from birth frequently experience higher success rates in literacy acquisition (Kuntze, 1998). However, there remains a paucity of studies on how young Deaf children whose success with literacy development can be reasonably predicted, begin their journeys toward literacy. With the understanding that early literacy experiences significantly impact all children’s literacy development (Bus, Van Ijzendoorn, & Pelligrini, 1995), it is important to have a clearer understanding of how Deaf children develop emergent literacy skills.

This dissertation presents a year-long case study on four young Deaf children from native-ASL families who were immersed in literacy-rich environments and how they developed literacy skills in school and at home. In order to provide the fullest possible picture, parents, teachers and children were interviewed and observed. As literacy development does not happen in isolation; this dissertation provides information about the children’s sociocultural context that included the literacy experiences and beliefs of the adult participants and the children’s own experiences at home and in school. Artifacts including writing samples and data from an early literacy checklist were also collected to provide information about each child’s individual written language development.

The data were organized and analyzed based on salient themes and framed by socio-psycholinguistic studies on hearing children by researchers such as Dyson (1993),
Ferreiro & Teberosky (1982), and Goodman (1996). Results show that with full access to language and opportunities to develop reading and writing abilities, Deaf children’s emergent literacy development is highly similar to that of monolingual and bilingual hearing children with some characteristics unique to Deaf ASL-English bilinguals. The results of this dissertation study adds to the general body of knowledge of how children develop literacy abilities even when they do not have face-to-face communication in their literate language. The results also inform current practices in Deaf education and provide researchers, educators, and parents with a framework for understanding the critical role that language and communication play on Deaf children’s literacy development.
CHAPTER I: UNDERSTANDING THE COMPLEX ROAD TO LITERACY FOR YOUNG DEAF READERS

When children step into a school building as students for the first time, they are frequently accompanied by parents harboring their own expectations for their children’s academic growth. Their hopes and dreams for their children are often inherently linked to how well their children accomplish academic tasks, and they expect nothing less than a high quality education. The parents expect their children to learn many things in school and perhaps above all, how to read and write.

This simple expectation is far more complex than it seems. Not all children find the road to literacy easy to navigate. A child does not sit at a desk, look at lines on paper and instantly know what those lines mean. Teaching a child to read does not simply entail rote memorization with the teacher telling the child what the printed word says and then moving on to the next word. Reading is not a simple decoding task in which a child sounds-out the printed word and suddenly comprehends (Goodman, 1993). If learning to read were only a matter of decoding, children everywhere would learn to read with relative ease. Instead, learning to read and write involves several factors and is an intricate blend of sociocultural, psychological and cognitive dynamics, which I explain in further detail in Chapter 2.

Learning to write is an equally complex phenomenon. Before children develop conventional written work, they begin their lives as writers by developing a social need to communicate, emulating what they experience in their own social worlds (Dyson, 1993). Transacting with text by reading or writing is a skill that develops over time, often starting from infancy and continuing well into adulthood. Frequently, researchers find
that learning to read and write is largely dependent upon early language and literacy experiences. Results from early literacy research invariably show that children who have already had significant literacy experiences prior to formal schooling have a much better chance of developing stronger reading and writing skills earlier (e.g., Bus, Van Ijzendoorn, & Pelligrini, 1995; Nelson, 1998). For example, it has been demonstrated that children who experience books at home from an early age find reading more pleasurable in school (Trelease, 2001). Additionally, children who have the opportunity to write at home at very young ages frequently demonstrate emerging ideas about the written language that later develops into a more sophisticated understanding. During this process, they formulate their own hypotheses and modify ideas as their written language abilities develop (Ferreiro & Teberosky, 1982).

Based upon what is known through research, it is possible to surmise that the impact of early literacy experiences on children’s acquisition of reading and writing is equally true for Deaf\(^1\) children. Early literacy experiences appear to hold significant implications for how young Deaf children begin their literacy journeys and how they continue to develop into skilled readers and writers.

The Deaf population is highly diverse and it would be a disservice to each group to assume all Deaf children develop literacy in the same way. For example, there are Deaf people who use the oral language solely as a means to communicate, those who use

\(^1\) The uppercase D in Deaf is frequently used to reflect the view that being Deaf is a cultural and linguistic phenomenon rather than a medical anomaly. In this dissertation, I utilize the capitalized form in application to both Deaf and hard of hearing people with the understanding that not all individuals consider themselves culturally or linguistically Deaf. The capital D is used to reflect my view that as in other cultural groups, the Deaf culture is rich and diverse that includes Deaf and hard of hearing people from all walks of life. Perhaps more importantly, that being Deaf is more relevant to language and communication rather than medical issues.
mixed communication systems, and those who sign. Within the signing subgroup, there are individuals who use manually coded English systems and those who use a formal and linguistically complex language, American Sign Language (ASL). This study focuses on young children ages 2-5 whose parents are Deaf and are self-professed ASL-English bilinguals. Although this is a complicated and elusive statistic, it is believed that less than five percent of all Deaf children have Deaf parents (Mitchell, 2004).

The primary reason for a research study focusing on this specific group of ASL-English bilinguals is that there are a number of studies showing that higher levels of academic achievement in Deaf children whose parents are Deaf compared to Deaf children of hearing parents. As early as 1966, Stuckless and Birch (1997) studied the influence of early manual communication on the linguistic development of Deaf children. The study revealed that early ASL acquisition facilitated higher test scores in Deaf children’s reading comprehension and expressive writing.

More recently, Nover and his colleagues (Nover, Andrews, Baker, Everhart, & Bradford, 2002) collected profiles of students demonstrating that the higher achievers were the students who had increased use of sign at home and had more time with bilingual teachers. Furthermore, Bailes (2000) studied four bilingual classrooms ranging from kindergarten to the 5th grade at an ASL-English bilingual charter school. One of the results showed that fluent bilingual teachers provided clear models for their students who, as a result, achieved high levels of ASL and English. It is undisputed that not all Deaf children with Deaf parents learn to read and write well. Factors that have an impact on
hearing\(^2\) children’s literacy development will also have an impact on Deaf children (e.g., individual personalities, socioeconomic status, and literacy opportunities at home). In other words, just as not all hearing children are alike, not all ASL-English Deaf bilinguals are alike. However, educators stand to learn much from those children in order to have a better understanding of what expectations should be in place for all Deaf children.

**Research Design and Research Questions**

There is very little research concerning how Deaf children who have access to communication and language from birth develop a second language through reading and writing even when they do not speak the language. Educators and researchers have yet to understand fully how Deaf children who do not use spoken language to communicate begin to transact with print within an alphabetic system and whether their development is comparable to their hearing monolingual counterparts. Clearly Deaf children differ from their hearing monolingual peers; their acquisition of the printed word is in a second language, in this case, English. Deaf children are required to transact with a language in print that they are largely unfamiliar with.

Therein lies the root of this dissertation study. In exploring how Deaf children become literate, this study will take into consideration what researchers know about the impact of early literacy experiences to attempt to answer the following research questions:

How do young Deaf children ages 2 – 5 who use ASL from birth develop literacy in home and school settings over a one year period?

---

2 Individuals who hear at levels that enable them to understand and communicate using spoken language.
• How do young Deaf children ages 2-5 demonstrate literacy development in their written work?

• How do young Deaf children ages 2-5 demonstrate their literacy development as they respond to books and other written material as they read?

• What role does phonological awareness play in the written language development of young Deaf children ages 2-5?

• What role does ASL play in the literacy development of young Deaf children ages 2-5?

To answer the research questions, I utilize a case study approach. Case studies are defined as a bounded system that focuses on a specific unit (Merriam, 1997). As Rossman and Rallis (1998) state, “(Researchers) seek to understand a larger phenomenon through close examination of a specific case and therefore focus on the particular. Case studies are descriptive, holistic, heuristic, and inductive” (p. 70). From these concepts, I seek to provide a close up view of how literacy acquisition happens within a closed set of children in order to provide a glimpse of the broader possibilities.

Using established models by those who have studied literacy development in young children (Dyson, 1993; Ferreiro, 1982; Yaden & Tardibuono, 2004) this study will focus on the literacy lives of four deaf children between the ages of 2-5. The four children selected for this research study attend the same ASL-English bilingual program with highly skilled bilingual teachers and have bilingual Deaf parents. Furthermore, each parent in this study has attained higher education degrees and is involved in the
educational system in different capacities. They are highly involved in their children’s education and provide ample opportunities for literacy development at home.

For a period of one year, I conducted ongoing parent, teacher and child interviews along with regular observation sessions of each child’s transactions with print. Furthermore, artifacts created by each were collected demonstrating their reading and writing development. All of the data were compiled, organized and categorized according to themes found within the study itself.

As a parent of one of the informants, I acknowledge a bias toward what I believe helps my child become a successful reader and writer. However, even as someone well acquainted with the field of literacy acquisition including related research and as a fully literate Deaf person, I find that I do not know enough about how my own Deaf children will travel down the road toward literacy. At what point did he begin to conceptualize meaning in print? How and when did he begin to express himself using print? What sort of hypotheses did he form about reading and writing? There have been numerous case studies in which researchers studied their own children’s language and literacy development (e.g., Halliday, 1975). As other researchers like Halliday already knew, I found that having full access to my own child allows me to study unplanned, unstructured, and unprompted learning that I might not otherwise be privy to.

For more than a decade, I’ve studied literacy development in Deaf education. As a student, teacher, literacy specialist and administrator heavily immersed in the field, I have been given the opportunity not only to research, but experience how Deaf people of all ages acquire English literacy skills. Through my studies at Gallaudet University and at
the University of Arizona as well as my own readings, I have built up an extensive body of knowledge that will contribute to this research study. I reference and discuss much of the related literature in Chapters 2 and 3.

Significance of the Study

In 1813, Thomas Hopkins Gallaudet met his first Deaf student, Alice Cogswell. Upon learning that she was not playing with her peers because she was Deaf, he proceeded to conduct an impromptu experiment that had a far reaching and long lasting impact on the lives of Deaf people in North America. Gallaudet decided to see if Alice could learn to read and write. He simply wrote the word “hat” in the ground using a stick. He then showed Alice his hat and encouraged her to make the connection between the two by repeatedly writing “hat” and then pointing to the actual hat. Alice caught on quickly and the next thing she did was learn to read her own name. This surprised and inspired Alice’s father, Dr. Cogswell who proceeded to raise funds for Gallaudet so that he could visit Europe and learn more about educating the Deaf. After a frustrating experience with educators in England who placed stringent controls over their secret oral-instruction methods, Gallaudet went on to France in hopes of acquiring knowledge that he could use and disseminate. There, he learned about the use of signs to teach Deaf children (Neimark, 1983).

Even then, the use of signs to teach Deaf children was not new. Formalized education using sign language can be found dating back to the mid 1500s in Spain (Plann, 1997). This knowledge spread to France and schools were established in the region with signs being the primary mode of instruction (Daniels, 1997). Gallaudet learned about the
use of signs to teach Deaf children and brought a Deaf teacher, Laurent Clerc, back to the United States. Armed with his newfound knowledge, he and Clerc proceeded to start the first formal school for the Deaf in Hartford, Connecticut (Neimark, 1983).

It is important to note that the first thing Gallaudet taught Alice was how to read and write. Even then, the ability to read and write was recognized as a powerful tool, a medium through which people learned. However, nearly 200 years later, Deaf educators are still inundated with the oft-repeated statistic: Deaf children often plateau at a 3rd or 4th grade reading level. What does this mean for the future of all Deaf children? In today’s society, low levels of reading and writing skills mean difficulty accessing other parts of the curriculum, difficulty discovering opportunities for employment requiring higher literacy skills, and perhaps, difficulty with accessing what is known as the “hearing world.” Reading and writing opens doors for all people and I believe that this rings even truer for all Deaf people.

Why is it so difficult for some Deaf people to obtain higher literacy skills? Based on my research, my experiences as a literacy specialist and as a Deaf person, the problem does not lie within Deaf people, but within their environments. A severe lack of language from birth, poor instructional strategies, and a lack of understanding about Deaf people and our language are huge contributors to this statistic.

Rather than design a speech community for Deaf students, induct them into it through schooling, and then expect them to maintain it, it may be more fruitful to begin by asking who young Deaf American students are, linguistically, socially, culturally, and educationally. This latter approach holds more promise of uncovering ways that varieties of English and ASL interact and serve the needs of young Deaf children, their hearing families, and their Deaf culture mates in their homes, schools, and social lives. (Ramsey, 1989)
The 4th grade statistic, referenced earlier, is solely based on standardized test scores that tell us very little about the true abilities of all Deaf readers. For so long, educators have assessed Deaf children’s literacy skills and prescribed remediation strategies for improvement based on hearing, white, upper/middle-class standards. The general notion is that the Deaf do not succeed in literacy achievement because they cannot hear and therefore do not have full access to English (Mayer & Wells, 1996). This is a seemingly viable theory but a rather simplistic one because there are many bilingual Deaf adults who read and write perfectly well.

As the research shows, access to communication is critical for cognitive development, which in turn, is critical for literacy development (Kuntze, 1998). Because of a multitude of reasons, many Deaf children come to school without being able to communicate in any complex language. This is not trivial and holds many implications for language learning. It must be recognized that there are individuals who do become highly literate in spite of acquiring a complete language at a later age. However, it is difficult to predict future success with young Deaf children who have not had the opportunity prior to preschool to experience a fully developed language system.

Based upon this premise and on what researchers know about successful ASL-English Deaf bilinguals, it is important to study young Deaf children whose success in reading and writing can be predicted. Educators and researchers must learn from those children in order to begin to create a flexible but appropriate literacy acquisition model for all Deaf children. Using a research-based model that is designed to fit the needs of Deaf children is imperative in doing away with the 4th grade reading statistic.
I hope that this study serves as a model for research into literacy in Deaf communities. Historically, many researchers have focused solely on specific components of literacy development with generalized populations of Deaf students with highly diverse linguistic backgrounds. Although these types of studies are critical in contributing to the general body of knowledge of literacy in all Deaf children, educators and researchers need to begin developing greater in-depth understanding of how literacy develops in young Deaf children. “A fuller picture of Deaf children’s early literacy experiences needs to include the views of parents and teachers and, where possible, the voice of the child” (Watson & Swanwick, 2005, p. 73). Through the case study approach, the parents, teachers, and the children themselves became actively involved and their experiences and input are highly valued in this study.

A fully literate Deaf child has the world at her fingertips. She is able to access the community in many different ways. As literate Deaf adults know, reading and writing are powerful media in which to communicate with the community. Professional educators and parents cannot ignore issues of literacy learning or wait until the first day of kindergarten to begin considering children’s literacy development. It is also unnecessary to wait until children’s first language is fully developed in order to start with the written language. Answers to the above research questions provides the fields of literacy and Deaf education with valuable insights into how educators and parents continue to promote and perhaps jump-start literacy development and therefore academic achievement in young Deaf children.
By doing extensive case studies on four informants, I hope to expand on understandings of how Deaf children begin to become fully literate. Perhaps even more importantly, I hope that information from this study is added to the general body of knowledge about how all children learn to read and write. With ever-growing knowledge and understanding about educating Deaf children, literacy as well as bilingual education, along with the contributions of this study, teacher education programs as well as in-service programs can be geared to provide teachers with a better understanding of what a good literacy program should entail. The results from this study will inform a number of educational communities about literacy development in all Deaf children. This includes parents, teachers of the Deaf, teacher educators, second language teachers and researchers.
CHAPTER II: UNDERSTANDING EARLY LITERACY DEVELOPMENT

Educational research might be seen as being in the throes of an epistemological crisis, one in which we are sniping at each other about \textit{how} we know while practitioners are complaining about the scope and relevance of \textit{what} we know, and too many policy makers and members of the public are convinced that in fact, we know very little. (Reutzel & Mitchell, 2003 citing Snow, 2001)

\textit{What Research Shows about Early Literacy Development}

There are thousands of articles, books and other forms of literature on early reading and writing development. In the era of politics and education, what is considered general knowledge about reading largely depends upon what body of research is read and believed. The No Child Left Behind (NCLB) act, a fairly recent legislation aimed at improving academic achievement in all children, has had a resounding impact on schools across the United States. The reading section of the NCLB is based on the National Reading Panel 2000 report, which stated that phonics and phonemic awareness are vital to reading achievement (Adams, 2002; Education, 2003). However, the report’s findings have been highly contested with claims that the results were influenced by the panel’s individual pedagogical beliefs (Allington, 2002).

In the field of reading research, there have been significant paradigm shifts as our understanding of reading evolved over the past fifty years from a conditioned learning and behaviorist perspective to the modern “Era of Engaged Learning” coined and explained by Alexander and Fox (2004). “The history of reading research reveals a shifting emphasis on the physiological, psychological, and the sociological. While reading always involves physiological, psychological and sociological dimensions, each era weighs these dimensions differently” (Alexander and Fox, 2004, p. 57).
In this most recent era of literacy research, the learner is conceptualized as a motivated knowledge seeker . . . Specifically, it is assumed that a search for understanding or the act of learning via text involves the integration of cognitive and motivational forces. . . In particular, while the learner still resides and operates within a sociocultural context, attention again is given to the individual working to create a personally meaningful and socially valuable body of knowledge. Thus, the portrait of the engaged reader framed by the research has both individualistic and collective dimensions, a reconciliation of information-processing and sociocultural perspectives of past decades. (Alexander and Fox, 2004, p. 52)

In other words, it is not possible to consider literacy development in a linear sense but as significant intrinsic and extrinsic forces that intermingle. When considering children’s literacy development, no single force can or should be ignored. This literature review and dissertation study is largely framed by the current perspective that combines the knowledge presented by researchers from different orientations.

However, it is impossible to reflect upon every single factor that impacts literacy development in children in a single dissertation. In this chapter, I consider a variety of works concerning reading and writing development as well as the role of social learning in literacy development for all children. Because there is a lack of pedagogical agreement in the general education community on how children read and write, the works discussed in this section were selected based on my knowledge as a teacher, researcher, and perhaps most importantly, my experience as a reader and writer. I have selected bodies of work that specifically relate to this study. These works largely compliment one another and cover a broad spectrum of reading and writing as it relates to young children’s literacy development. The rest of this chapter is divided into five sections: The Reading Process, Vocabulary and Phonics, Early Writing Development, Learning to Read and Write as a
Social Phenomenon and Written Language Development and Bilingualism. In Chapter 3, I review literature specifically related to literacy development and Deaf children.

The Reading Process

In order to understand how young children begin to read, it is important to explore the psycholinguistic perspective on how reading happens in direct relation to the reader. In On Reading, Goodman (1996) presents the reading process as composed of four cycles: visual, perceptual, syntactic and semantic. The visual cycle occurs when the printed text is seen by the eye. The perceptual cycle occurs immediately after the information is brought from the text to the eye. This is a complex cycle during which a person begins to put meaning to what is seen based on what she already knows. Hence, different individuals may perceive the same text differently because of differences in knowledge and experiences. The syntactic cycle refers to the recognition of the perceived information as a language with specific grammatical content. Information is derived from the word order/grammar structure itself. The semantic cycle occurs when the reader derives basic meaning from the individual word. This cannot happen without the syntactic cycle because the whole text provides clues to the actual meaning of a particular word.

From these cycles, three cueing systems have been identified: semantic (information derived from word meaning), syntactic (information derived from text structure) and graphophonic (visual/perceptual information). Those cues provide readers with tools for text comprehension (Goodman, 1996). Development of those cueing systems begin when an infant acquires and develops language. In learning language,
children build and expand upon what they already know. As they do this, they develop the ability to deal with symbolic forms such as street signs, pictures, and other images and letters containing meaning found in the environment. With this, visual and perceptual reading abilities as well as syntactic and semantic abilities develop and evolve as a child engages in making sense of text. This is mediated by dealing with written language within authentic contexts. As Goodman (1996) explains, “Only in the context of real language do the graphophonic, lexico-grammatic (syntactic) and semantic language systems occur in the proper relationships so that young learners are able to develop and use strategies for making sense. They need to learn to sample the print selectively, predict and infer, and self-correct as needed, all within a focus of making sense of print” (p. 121).

Through transacting with text, children develop reading strategies over time. They learn how to predict, infer, confirm, and construct meaning from text. Research involving miscue analysis has demonstrated that children, when engaged in the reading process, utilize the aforementioned strategies (Y. Goodman, Watson, & Burke, 1996). As people read, people make predictions about what they will read, test their predictions (hypotheses) about what they read, and by continuing to read the text, they either confirm their hypothetical meaning of the text or adjust their understanding, sometimes this process involves rereading the text in order to figure out its meaning. By accessing the cueing systems and strategies, children are able to acquire meaning from the text itself. This is also true for beginning readers. Children experience print in a variety of forms prior to schooling and begin to develop similar reading strategies for dealing with new text by using their knowledge accumulated to that point (Y. Goodman et al., 1996).
Frank Smith (1996) emphasizes the importance of creating bridges between text and meaning. In his conceptualization of reading, readers are perceived as actively creating meaning as opposed to passively obtaining meaning. He emphasizes that comprehension largely depends on readers confirming and modifying what they predict. Each person addresses text with a preconceived set of understandings about the world. Readers know what will be unlikely to happen when reading a specified text and develop a contained conception of what they will read. This helps readers understand what they are about to read. In addition, Smith (1996) demonstrates that part of the predicting process is asking questions, and reading comprehension occurs when the reader knows what the answers to those questions are.

In *Reading without Nonsense*, Smith (1996) demonstrates how young children, in particular, conduct experiments in order to learn and develop language. They attempt different forms of language structure, and often over-generalize and under-generalize linguistic rules through trial and error. Smith presents the idea that children learn to read in similar ways. Children conduct experiments as they read in order to acquire the written language. Through predicting, confirming and experimenting, they determine what makes sense and what does not. By being active readers, children become proficient through the act of reading itself.

**Vocabulary and Phonics**

It took lengthy consideration in determining whether or not a discussion on vocabulary development, phonemic awareness and phonics belonged in this dissertation because of its controversial nature within both the general education and Deaf education
communities. Quite recently, I had a conversation with a good friend who is profoundly Deaf. She had recently suffered a bout of the flu and went to see a doctor who was not her regular physician. Given the last-minute nature of this appointment, an ASL-English interpreter could not be booked. The doctor was at a loss on how to communicate with her and wrote “Are you literate in writing?” Quite aptly, my friend responded in writing, “You are insulting me.” She works as a principal, has several higher education degrees along with teaching-related credentials, yet she was subjected to the same question that many Deaf people encounter at least once in their lives; whether or not they can read or write. The doctor was quite apologetic but it is clear that she, like many people, could not conceptualize how individuals who do not hear a single sound or syllable, learn to read and write in an alphabetic language.

Researchers, teachers, and the general public alike frequently become confused when considering the application of phonics reading instruction to Deaf children. For the purposes of this dissertation, especially because it relates to all children’s early literacy development, a clearer understanding of the definitions, perspectives and roles of phonics, phonemic awareness and vocabulary in relation to reading comprehension is needed. With the exception of Goodman (1993), most researchers in the general field fail to consider Deaf children’s literacy development and how this type of information could inform educators how all children learn to read. In this chapter, I discuss these concepts as it relates to the general (i.e., hearing) population. In Chapter 3, I address the application of the information discussed in this section to Deaf children.
Phonics is frequently defined as the systematic instruction of letter-sound relationships for the purposes of reading instruction (e.g., Adams, 2002). Phonological awareness is the understanding of phonemes (Richgels, 2002 & Stahl, 2002). In other words, phonics can be conceptualized as an instructional tool intended to develop a child’s phonemic awareness; the child’s understanding of the smallest units of sound (phonemes) and how it relates to the printed word. In support of phonics instruction, Adams (2002) writes “The goal of explicitly and systematically teaching children to understand and use phonics is to bring them to that (word recognition) point faster by supporting the efficiency and robustness of their learning as well as the independence with which it can be nurtured through their own independent efforts and thoughtfulness” (p.78). In explaining the current phonics perspective, Adams posits research that when learning words holistically by sight, a child needs to see a word 57 times. This appears astronomical given the great number of words that needs to be learned. What is not taken into consideration that children eventually learn to read many words within sentence structures that they do not encounter or use in the speaking world. However, Adams asks a significant question that drives the heart of this dissertation: “Learning must start somewhere: if not with letters and phonemes, then where?” (2002, p. 68). Possible answers to this question will be examined throughout this study. Children clearly cannot stare at print and spontaneously make sense out of it. Printed words and sentences must be mediated somehow and it is clear through related literature that being able to sound out words and having a measure of phonemic awareness assists in reading. The fundamental premise behind the phonics debate is not whether children benefit from
phonemic awareness, but how children develop this type of awareness and whether it needs to be explicitly taught.

In *Phonics Phacts*, Goodman (1993) presents arguments disputing the need to explicitly teach children how to make the sound-letter connections. For example, he contends it is not possible or reasonable given the great number of variables in spoken English. When considering regional dialects, or even international English dialects, the same spoken word may sound different. As simplistic as this may seem, it holds considerable implications for how children are illogically expected to learn how to read from a specific set of sounds (which may or may not pertain to their regional dialect). Another example that Goodman uses is *allophones* which are defined as variable forms of phonemes. Depending upon where exactly the phoneme is placed in an English word, the same phonemes can sound differently. Additionally, when morphemes are placed together such as bathe (bath with e), entire morphemes vary in how they are spoken and how they sound. Intonation is also presented as another factor that complicates the concept of being able to singularly identify how phonemes sound. In other words, when a person creates stress, pitch, and pauses in their speech, this changes the way the phonemes sound.

Goodman (1993) also discusses issues with orthography itself and how, even in an alphabetic language, words are spelled differently from the way they are spoken and this cannot be limited to a fixed set of phonemes with exceptions and rules to follow. There are far too many. Even on a syntactic level, in speech, people do not say sentences following the exact same structure as they are written. Goodman uses the word *gonna* as
an example. The spoken word, *gonna* is used frequently to represent going *to* (in writing) depending on the full sentence used. All in all, the expectation of explicit phonics instruction as a singular way of teaching children how to read is unreasonable given the number of variables involved. As, Goodman (1993) writes,

> All readers (at least those who can hear) can and do use phonics. But they use it within the complex process of making sense of print as they read, and of expressing comprehensibly what they need to say as they write. . . . children equip themselves best for reading and writing by building *a personal understanding of the phonics of their own forms of English*, rules for relating their own phonology to print . . . For all these reasons, phonics is learned best *in the course of* learning to read and write, *not as a prerequisite*. In fact, our phonics is determined by our speaking, listening, reading and writing *experiences!*”(pp. 50-51).

In his discussion concerning the relationship between invented spelling and phonemic awareness, Richgels (2002) presents studies showing that invented spelling is reflective of a child’s phonemic awareness. He also writes that children begin the development of phonemic awareness and demonstrate ability to differentiate between phonemes at an age as early as four weeks old. “Phoneme awareness, invented spelling and word reading comprise only a single, albeit a very significant, piece of the larger picture of children’s developing literacy knowledge and competence . . . Children need opportunities to discover the phoneme-grapheme correspondences on their own and to see teachers demonstrate and highlight them” (p. 151).

Stahl (2002) writes that phonics does happen in whole language classrooms. His conceptualization of phonics delineates a much broader definition to include almost any type of work with letters and sounds. This definition along with Goodman’s (1993) discussion echoes a rather different perspective on how phonics itself is defined and
perhaps in itself is a way of seeing how teachers incorporate information about sound-letter relationships in meaningful and highly contextualized ways and labeling this as *phonics*. This is a significant concept given the great number of studies that show that children who have higher levels of phonemic awareness tend to be more successful readers (e.g., Adams, 2002; Richgels, 2002; Stahl, 2002).

In defining *vocabulary*, Lehr, Osborn, and Hiebert (2008) write “. . . we define vocabulary as knowledge of words and word meanings in both oral and print language and in productive and receptive forms. More specifically, we use *vocabulary* to refer to the kind of words that students must know to read increasingly demanding text with comprehension.” What it means to *know* the meaning of a word also presents additional complexities within this definition. There are degrees of knowledge that can be visualized as a continuum starting with a basic understanding and continuing to a more in-depth, multifaceted understanding of word meaning (Nagy and Scott, 2000). The assumption that simply sounding out words equates comprehension is misleading. Additionally, knowing a specific definition of a word within a specific context does not mean that the same definition applies to the same word within a different context.

Furthermore, written language vocabulary is developed based on the child’s experience with both oral and written language mediated by individuals within the child’s literate culture, and as demonstrated from miscue analysis, by the text itself. Vocabulary development does not happen separately from reading development. However, as demonstrated by Goodman (1996), this is not as simple as it seems and involves intricate and complex knowledge of word meanings (semantic) within context (syntactic) which
lends itself to reading ability. “In fact, for most children (with) reading problems—word recognition—probably play less of a role in reading comprehension than does knowledge of word meanings. This claim is made because, by the end of the third grade, most children can read many more words correctly than they understand in context (Biemiller, 2005)” (Biemiller 2006, p. 41). One of the most significant influences in the acquisition of vocabulary occurs not through direct instruction, but through natural events such as storytelling discussions and explanations (Biemiller, 2006). This suggests that the type of Discourse surrounding storytelling time contributes to vocabulary which in turn contributes to literacy registers and reading development.

**Writing Development**

In a number of research studies, Ferreiro explores the development of writing in very young children through a variety of case studies (e.g., Ferreiro, 1988; Vernon & Ferreiro, 1999). Perhaps one of the most important conclusions she demonstrates through her studies is that the acquisition of written language is similar to the acquisition of oral language. Ferreiro conducted multiple studies with young subjects between the ages of two to five years in order to explore how they develop writing and punctuation (e.g., Ferreiro & Pontecorvo, 1999; Ferreiro & Teberosky, 1982).

In a case study conducted over two years, Ferreiro (1986) presents an analysis of how two children developed and modified their hypotheses of how print works: Each child went through a very specific sequence of hypotheses when starting to develop their conceptualizations of the written world. The first sequence consists of a one letter-one word hypothesis. At an age of approximately two and a half years old, one of the children
in the study clearly demonstrated that she viewed the letter as belonging to someone (e.g., J belongs to Jennifer). Because names are significant in the children’s worlds, both children conceptualized all of the printed words as “names” belonging to objects as well as people. This is labeled as the *ownership rule*. The children also seemed to demonstrate that they knew the single letter was insufficient as they recognized that there were more letters in a string following the initial letter. Yet, seeing the first letter of a word allowed the children to predict the meaning of the word, regardless of whether or not this prediction was accurate.

Approximately one year after this initial connection, and armed with the knowledge that one letter-one word is insufficient, a one letter-one syllable hypothesis evolved. This one letter-one syllable hypothesis also appeared in another child in the study. However, as the children became more knowledgeable about the differences in the number of the printed letters compared to the differences in the number of syllables, they eventually figured that more letters were needed. Between four and a half to five and a half years old, both children developed a better understanding of the full word-word structure. The children in the study came from similar backgrounds yet arrived at those hypotheses in individually distinct ways. However, this study revealed that the children would not have been able to develop the aforementioned hypotheses without external models, and plenty of opportunities to write and a desire to be understood by others.

Ferreiro also demonstrated that in addition to hypothesizing that there are specific letters for every name/word and no two names can have the same letter; the children also developed hypotheses relating to the quantitative nature of print. For
example, some children hypothesized that the larger the object represented by text, the more letters it has. This is called the \textit{interrelational (non systematic) quantitative differentiation} (Ferreiro, 1986). As the children grew older and developed their literacy, they experienced conflicts between their conceptualization of writing and their experiences in attempting to make sense of the written word. Accordingly, they modified their hypotheses as their writing abilities mature and their writing becomes more conventional. Ferreiro also states “The relations between oral and written language cannot be reduced to the sound-relationship between phoneme and grapheme. They are far more complex” (p. 23).

At the end of a study, Vernon and Ferreiro (1999) conclude, “The results of this study speak to the ongoing controversy about approaches to early literacy instruction – that is, whether children’s ability to segment words into phonemes (phonological awareness) is a prerequisite for learning how to read and write. These results show that phonological awareness is not an either/or phenomenon, but that it develops across levels and that this development is related to children’s writing development” (p. 395). In other words, phonological awareness develops concurrently with the acquisition of written language. This is significant in allowing children to develop their own hypotheses about writing and thus, develop their own writing abilities.

\textit{Learning to Read and Write as a Social Phenomenon}

From infancy on, we human beings are remarkably social (Bruner, 1986). Indeed, a young child’s developing sense of self is characterized by an expanding sense of how to share experiences with others . . . Learning to write in school involves figuring out the kinds of social work accomplished through that medium, and thereby, gaining entry into the range of social dialogues it furthers. (Dyson, 1993 p. 11)
Learning to read and write is foremost a social experience. Through social and contextual means, all children access print and create meaning. When researchers and educators review literature related to early literacy development, it is impossible not to notice the prevalence of articles and books that focus primarily on the impact of social learning on literacy development.

In the *Handbook of Early Literacy Research*, (2002) Gee writes “... the NLS (New Literacy Studies) suggests that if someone wants to know about the development of literacy, he or she should not ask how literacy and language develop. Rather, he or she should ask how a specific sociocultural practice (or related set of them) embedded in specific ways with printed words develops” (p. 37). By writing this, Gee emphasizes the importance of analyzing sociocultural practices and their role in literacy development.

Gee (1992) focuses on the act of reading and how it influences different types of Discourse\(^3\), including written communication. He presents the concept that written languages are forms of Discourses as well as other types of literacy activities. Also using a Vygotskian approach to child development, he writes, “Human thought is always and everywhere mediated by cultural “tools” with their own distinctive social histories” (Gee, 1992). Through a theoretical discussion, it is demonstrated that educators and researchers cannot view literacy as a separate, single event. Gee concludes that a large and disproportionate number of children from lower socio-economic groups and specific minority groups do not do well in school. Concerns are raised about how differences in

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\(^3\) “A Discourse is a socio-culturally distinctive and integrated way of thinking, acting, interacting, talking, and valuing connected with a particular social identity or role, with its own unique history.” (Gee, 1992, p. 33).
Discourse between the educator and the educated affect literacy practices and
achievement.

The child in Gee’s (2002) study came from a family that emphasized literacy, and
Discourse between him and his father sheds light on how the child developed a high level
of literacy skills at a young age. During an instance when the father presented his child
with a book, the child verbalized that he was “learning to read.” On one particular page in
the book, there was the question: “In what are Donald and Daisy riding?” This was
supported by a picture in which a car is uncovered using a ‘magic pen.’ When asked what
the text said, the child read, “What is Donald and Daisy riding on?” Although the child
had previously demonstrated knowledge of alphabetic letters, the child did not decode the
exact words verbatim. Gee writes that the child had clearly processed information as to
the type of question probably being asked, names of characters, and how to phrase a
question in his vernacular. It can perhaps be interpreted that type of knowledge appears to
serve as a precursor for continued acquisition of semantic, syntactic and graphophonic
cues. Gee concludes, “. . . the child’s acquisition of the reader Discourse (being a certain
type of reader) is simultaneously aligned with (traditional) school-based Discourses and
part of his acquisition of his primary Discourse. This ties school-related values, attitudes,
and ways with words at a specific and not some general level . . . This will almost
certainly affect how the child reacts to, and resonates with, school-based ways with
words and things” (p. 40). In one single literacy event, the child used his social
knowledge, knowledge of oral language, knowledge of written language, and prior
experience to mediate meaning of the text.
This is supported by Olson’s (1995) discussion, also based on Vygotskian ideas, which outlines two fundamental beliefs: 1) Cultural, historical activities shape perception, action, and consciousness and; 2) The intellectual development of children should be viewed in part, as the acquisition of symbolic systems of the culture. He then presents an in-depth analysis of the history of the written language, arriving at the conclusion that language is a *metalinguistic* social construct. In addition, he writes that writing systems are representative of speech “but not in the way that is conventionally held. Far from transcribing speech, writing systems create the categories in terms of which we become conscious of speech” (Olson, 1995, p. 119).

Ferreiro (1996) continues this historical perspective by stating that human beings have always been naturally inclined to “produce marks” on surfaces. She also draws on Vygotskian concepts in conjunction with Piagetan ideas and argues that it is imperative that educators leave behind naïve perspectives of written language construct which views writing as simple representations of speech. Children perceive creating marks that others comprehend as a mysterious process in which they delve into and individually solve using their own understanding of the world. When considering the impact of a child’s immediate culture on writing development, Ferreiro claims that writing is a socially established object that requires critical thinking skills. Children are motivated to create print when they are exposed to it in a literate society and they start to learn provided printed forms. In a literate society, children start writing early, before formal schooling begins (Ferreiro, 1979-80).
In Ferreiro’s case studies exploring the written language development of two children, she writes “literacy development takes place, no doubt, in a societal environment” and adds, “But social practices as well as social information are not perceived passively by children” (Ferreiro, 1986). Through the case studies, Ferreiro presents an analysis of how children develop and modify hypotheses of writing. In addition, it is clearly shown that children would not be able to develop ideas without external models and plenty of opportunities to write. Children base their writing on a desire to make meaning understood by the external world.

Through a number of qualitative and longitudinal studies, Dyson examines how sociocultural practices of children lend themselves to the development of their writing, primarily in urban schools. Dyson (1993) draws on the work of Discourse theorists such as Gee to frame her analysis of child Discourse within texts and social milieu. Each of the theorists presented share one common view: Discourse (both verbal and written) is a sociocultural phenomena affected by history, emotions, and a variety of other contexts. Dyson writes “Children come to school with rich histories of using words. Their growing ability to take social action through narratives and other genres helps children develop a sense of control and agency and, in addition, a sense of connection with others. However, the children also come with varying commands over diverse discourse traditions and genres” (Dyson, 1993 p. 18).

Dyson used the Vygotskian point of view that meaning is embedded within social situations to show how children write to express social energy (Dyson, 1989). In this particular study, the teacher allowed and encouraged conversations among children
during all parts of the day, including writing time. Dyson focused on a young girl who experiments with underlying stories starting with the phrase “once upon a time.” Through social Discourse with her peers, this young girl developed hypotheses about writing fiction and nonfiction and the rules surrounding both. Along with her classmates, she mediated meaning and value in stories and hypothesized that starting stories with “once upon a time” and “one day” held different implications about whether or not a story was true. Through analyzing social Discourse events surrounding the young girl’s writing, Dyson demonstrates how the girl’s understanding of fiction and nonfiction stories evolved and changed over time.

Dyson (1991) discusses how children develop symbolic understanding and states that “symbols and children’s understanding of the world are intricately linked” (p. 102). She shows how children are not mere imitators of the world around them but use the written system (and other types of media) to mediate a complex blend of sociocultural thoughts and feelings. Children tend to develop their writing based on the world around them and written development is shown as a manifestation of a two-way process in which Discourse develops writing and vice versa.

Dyson (1993) states, “Learning to write in school involves figuring out the kinds of social work accomplished through that medium and thereby, gaining entry in to the range of social dialogues it furthers” (p. 11). Dyson continues by making connections between learning to write in school and both past literary and non-literary experiences prior to schooling. For example, children learn how to make jokes, playact, and tell stories through oral Discourse. This type of knowledge helps them transact with text and
create print. Dyson’s work is significant as it gives researchers a way of perceiving and analyzing social Discourse among peers during writing events and it demonstrates that children have an ever-evolving view on how the written world works.

Watson (2002) also writes about the importance of preliteracy skills developed in social contexts and its impact on early and later literacy abilities. Learning about life and about the world, in general, including information that may seem insignificant and unrelated to literacy development: (e.g., that mixing white and red makes pink) contributes to children’s ability to understand text. This includes conversations about past and future events which also contribute to development of literacy skills. As Watson (2002) states “Literacy itself takes many definitions. Beyond acquiring a set of basic skills for decoding and producing written symbols, children must develop an interpretive competence with many forms of representation and communication” (p. 51).

Owocki (1999) also explored early childhood classrooms and also found that children develop and explore written language through play and interaction with each other. Through social collaboration, they construct knowledge vital to further literacy acquisition. They continually thrive on sharing and seeking out information, and play provides a vital role in the acquisition of knowledge. For instance, children’s sense of story is developed while playacting different genres and playing games related to stories they know. Play provides children with social means to use and construct language in a manner that is significant for literacy. For example, children create grocery lists when they are playing ‘house,’ or create menus when establishing an imaginary restaurant. All
these experiences provide children with meaningful opportunities in which to read and write; a crucial component for continued literacy development.

Similar to Owocki’s findings, Neuman (2001) observed that when children are unable to identify items such as grocery lists, maps or calendars during play, they are less prepared for literacy learning regardless of intelligence. She writes that children are at risk of failing at beginning reading when factors such as low income, poor medical care and unhealthy environments are present. The importance of teaching general knowledge in early literacy and content knowledge through books are stressed.

Cox, Fang and Otto (1997) studied reading development in forty-eight children in two different preschool programs. They compared preschoolers’ oral and literate registers. In this study, register is defined as patterns and configurations of language as it relates to different situations and context. Oral language and literate language is seen as two separate registers in which students code switch from one register to the other. Code switching is a term commonly used to describe the switching from one language to another (Baker & Jones, 1998). However, in the perspective put forth by this study, individuals code switch from the oral to the literate registers within the same language. All students were found to come to school with rich oral registers. Children begin developing literate registers when they receive extensive exposure to social literacy activities such as storybook reading. Not surprisingly, it was found that the preschool children who were more familiar with the literate register demonstrated higher metacognitive skills in relation to reading text. It appears that the development of literate registers provide children with an understanding of how print functions as well as how
grammar and structure differs from their oral language. It is discussed that the same children that demonstrate a higher understanding of the literate register have begun to internalize the cueing systems which prepares them for continued acquisition of reading skills.

**Written Language Development and Bilingualism**

In defining the linguistic interdependence hypothesis, Cummins (1984) writes “To the extent that instruction in Lx is effective in promoting proficiency in Ly, 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.” In other words, an individual’s first language can support acquisition of a second language if certain learning conditions (amount of exposure to the second language and level of learner motivation) are met. Cummins (2001) defines the hypothesis and presents empirical evidence that literacy development in one’s first language (Lx) facilitates second language (Ly) literacy. For instance, “educators discovered that Gaelic students learned to read English more easily if they had a basic grounding in Gaelic grammar and literature” (Cummins, 2001 p. 173).

In his *Theoretical Framework of Jim Cummins: A Review and Critique*, Baral (1987) frames his discussion of this hypothesis through a historical perspective to analyze how it has changed over time, and how it has been viewed and used by supporters of bilingual education. His critique not only discusses the linguistic interdependence hypothesis but how all of Cummins’ ideas compliment one another. Of particular note is how Cummins’ “dual iceberg” model is utilized to show how cognitive proficiency in L1
and L2 overlap one another, contributing to achievement in both languages. This is also known as the common underlying proficiency hypothesis. This hypothesis demonstrates that L1 and L2 do not simply contribute to bilingual development on a literacy level, but also on a higher cognitive level.

In *Language, Power & Pedagogy* (Cummins, 2001) academic proficiency is frequently used synonymously for literacy proficiency. Cummins states “the research is very clear that for groups that appear to be at risk of school failure, promotion of strong L1 literacy makes a powerful contribution to students’ academic success” (p. 192). However, Cummins (2001) also provides a broader perspective about what it means to be “academically proficient.” Academic language is the language used in academic settings and includes such aspects as vocabulary, grammar, functions of language, literate registers, instructional tasks, and decontextualized language use. This definition is not limited to written language.

In describing academic language Cummins (2001) writes, “Academic language proficiency thus refers to the extent to which an individual has access to and command of the oral and written academic registers of schooling,” (p. 67) and “Nor does it (academic proficiency) mean that the language proficiency of non-literate or non-schooled communities is in any way inadequate within the contexts of its development and use” (p. 75). This concept is discussed further in Chapter 3 when I discuss how the linguistic interdependence hypothesis remains applicable to Deaf children.

Edelsky (1989) studied the written productions of bilingual children and found that given opportunities to experience authentic writing, bilingual children develop
writing in both languages. In her study, young bilingual children are acutely aware of their audience and use language purposefully including code switching to express themselves. She debunks the myth that bilingual children displayed additional difficulties when learning to write and uses examples from her study to support the concept that bilingual children harbor significant language strengths by capitalizing on their knowledge of two languages.

Tabors and Snow (2002) summarize a variety of studies of young (hearing) bilingual children and their literacy development. They find that a variety of factors including the age of second language acquisition and learning, the role of the first language, and attitudes towards each language had significant impact on language development and literacy learning. They conclude that “Children with a strong foundation in their home language and continuing support for that language through home activities such as book reading are developing skills that will transfer to English later . . . This means that the early language environment of young bilingual children, whether intentionally constructed by families or merely happenstance, will have an important impact on children’s later language and literacy environment” (2002, p. 163).

All of the aforementioned studies in this section show that children who are bilingual benefit when they receive information in their first language. As a result, children readily learn information presented in the second language. This is supported by Freeman & Freeman (1998) who present a body of research that shows that students who are given opportunities to learn in their first (non-English) language are better equipped to acquire English.
Conclusion: Chapter 2

In conclusion, young children learn to read and write through socially and internally constructed means. They begin with the development of pre-literacy skills through social means especially when an optimal environment for literacy learning is present. This facilitates the children’s understanding of the purpose of symbols and reasons for creating texts in general. They delve further into reading and writing by utilizing cueing systems and developing reading strategies, as well as through their own individual hypotheses about writing. They continually develop, revise, affirm and redevelop written language hypotheses in creating their own literacy worlds. Additionally, literacy is developed further when children are given authentic means to read and write through social settings and this is often achieved through play. The information on how hearing children learn to read and write provides a partial framework for understanding the literacy development of Deaf children whose first language is ASL.
CHAPTER III: KNOWLEDGE ABOUT LITERACY DEVELOPMENT IN DEAF CHILDREN

When compared with general literacy research, research on Deaf children and their literacy development is still in its early stages. This is especially true for researchers of emergent literacy development in young Deaf bilinguals. Hence, it becomes important to consider literature about hearing children in conjunction with literature about Deaf children. This is not to say that research on Deaf children and literacy development is overly lacking. However, much of the studies are highly diversified stemming from different pedagogical and philosophical beliefs within the wide continuum of ASL-English bilingual education to monolingual oral education. Because the children in this study are from ASL-English bilingual homes and attend an ASL-English bilingual school, some of the work discussed in this chapter focuses on this population. However due to the lack of research about this particular group of young Deaf children, some of the research discussed also includes children of varying ages and children who did not access ASL at from birth at home.

Parallel to Chapter 2, this chapter is divided into similar categories and placed in a different order for the purposes of clarity: Written Language Development and ASL-English Bilingualism, Reading Development in Deaf Children, Phonics, Phonemic Awareness and Deaf Children, Vocabulary Development in Deaf Children, Writing Development in Deaf Children, and Learning to Read and Write as a Social Phenomenon in Deaf Children.
Written Language Development and ASL-English Bilingualism

Before discussing the research on how children within the scope of this study acquire literacy skills, the concept of bilingualism in Deaf children must be addressed. Throughout this chapter, literacy acquisition and bilingualism is often discussed simultaneously because for this particular group of Deaf children, it is not possible to separate the two. Not more than fifty years ago, American Sign Language (ASL) was viewed as a simple form of visual-gestural communication rather than a bona-fide language. Partially due to lack of research and misconceptions about ASL, educators focused mainly on the “problem” of teaching English in its spoken and written forms to Deaf children. Manually coded English sign systems were common in school settings where teachers attempted to code in sign what was spoken in English. These codes often included a focus on morphemes with signs to match each morpheme (e.g. -ed, -ing, and –ment). Those signs were often used with speech in an attempt to convey English on the hands and spoken English simultaneously (Stewart & Clarke, 2003).

It was not until the 1960s that Stokoe, a linguist, noted that ASL is not a form of English, but a language that has evolved in its own right (Strong, 1999). Klima and Bellugi (1979) conducted further studies and presented ASL as a true language of the Deaf demonstrating that it is complex, fully developed and has all the tenets of a formal language. With this understanding, the recognition of individuals who read, write, and/or speak in English and sign in ASL became recognized as bilinguals. Years after Stokoe’s ground-breaking research, the eventual expansion and development of schools adhering
to a bilingual educational philosophy that includes recognition of biculturalism appeared (Baker & Baker, 1997).

However, this is not a simple concept. ASL-English bilingualism potentially involves three different modes: visual/manual (receptive/expressive ASL), oral/aural (spoken English), and literal/print (reading/writing in English) (Knight & Swanwick, 2002). To further complicate matters, English may be partially conveyed in the visual mode through manually coded English signs (Stewart & Clarke, 2003). There also have been methods developed that attempt to express ASL in written forms (e.g., Suppala & Blackburn, 2003; Sutton, 2004).

Knight and Swanwick (2002) provide extensive clarification of this topic by explaining the similarities and differences between Deaf and hearing bilinguals in terms of cultural identity, language development and different levels of abilities in each language. As Knight and Swanwick (2002) define it, “The word bilingual describes individuals who have varying degrees of proficiency and can interchangeably use two or more languages to varying degrees. It is within this broad definition that Deaf people who use sign language and English have begun to be accepted as part of the whole bilingual community” (p. 7-8). It is now generally accepted that ASL-English bilinguals have different levels of proficiency in each language. However, educators must also concern themselves with a Deaf child’s degree of proficiency in each language. High levels of proficiency in written English become even more important when considering the implications for accessing the English-speaking community. Likewise, high levels of
ASL proficiency equate ability to access the ASL-signing community. Both languages are viewed as vital for accessing information in general for a wide array of purposes.

The ultimate goal in a bilingual/bicultural approach to educating Deaf students is to maximize the student’s potential for participating in both the Deaf community and society as a whole. The implementation of this goal can be viewed from different perspectives. Deaf people emphasize the need to develop fluency in ASL and an awareness of Deaf cultural values so that students know their identity within the community. Hearing people emphasize the need for competence in reading and writing English in order to be successful in the world. Both views are valid and important, and gradually, through the implementation of bilingual teaching strategies we are moving closer to finding the common ground (Evans, 1998, p. 145).

Evans’ statement reflects the predominant perceptions and attitudes regarding the strength and importance of ASL-written English bilingualism among proponents of ASL-English bilingual education for Deaf students. This, coupled with the fact that written English is a fully accessible language (i.e., a visual language) for the Deaf, serves as the underlying rationale for the development of ASL-English bilingual programs for the Deaf across the United States. Another rationale is the research that suggests having ASL as a first language facilitates developing proficiency in a second language (e.g., English). Although the definition presented by Knight and Swanwick (2002) is not specific in terms of modality, ASL-English bilingualism as presented in this paper will be considered predominantly face-to-face ASL and written English. This coincides with most current North American ASL-English bilingual education programs for the Deaf, along with bilingual methodologies covered in training for teachers.

Perhaps especially in terms of early literacy education, it is important to consider the following question: Is there sound theoretical & research-based support for
educators utilizing ASL to teach written English as a second language? Mayer and Wells (1996) disagree with proponents of ASL-English bilingual education who draw upon Cummins’ linguistic interdependence hypothesis to promote the use of ASL as a first language and written English as a second language in the classroom. In their paper, they ask the following question: “How appropriate is the assumption that ASL and written English are interdependent modes of linguistic expression?” (p. 103). Mayer and Wells (1996) argue that because Deaf people do not speak the language that they are learning to write, they are deprived of spoken language support when developing the written language. Mayer and Wells see no theoretical basis for using ASL as a foundation to learn English and “they (the Deaf) are deprived of the support that hearing learners of the written mode of a second language receive from their growing mastery of its spoken form” (p. 94). Within the parameters of the linguistic interdependence hypothesis established by Cummins lie the root of Mayer and Wells’ conclusion: Because ASL is not a written language; the language interdependence hypothesis does not apply to Deaf children using ASL to learn English as a second language.

This is a controversial topic and the root of the debate pertaining to the role of ASL in Deaf children’s literacy acquisition. Mayer and Wells (1996) conclude, “There is no indication of a correlation between the ability to communicate orally in an L1 and the subsequent ability to read and write in the L2” (p. 94). However, research presented in this section will demonstrate the limitations of Mayer and Wells’ interpretation and provide support for the use of Cummins’ linguistic interdependence hypothesis to justify ASL-English bilingual programs.
More recently, Mayer (2007) continued this argument by discussing the need for children to connect text to a *face-to-face* language. She presents four specific phases that begin with the development of a first language that leads to literacy development. Phase 1: Learning the first language; Phase 2: Social to inner speech; Phase 3: Inner to written speech; and Phase 4: Learning the synoptic genre. Mayer writes “Since natural signed languages do not have widely accepted written forms, development at phases 3 and 4 is not possible (for deaf and hard of hearing students)” (p. 412). She writes that spoken L1 permits development of phases 3 and 4 and disputes that signed L1 can promote development of these phases. In other words, Mayer is saying that ASL as the ‘inner speech’ language cannot transfer onto the written language.

Although Cummins’(1984) description of the linguistic interdependence hypothesis is clear, Mayer and Wells (1996) fail to consider other theoretical concepts presented by Cummins that lends itself to a broader interpretation of the hypothesis. In Chapter 2, I discussed Cummins’ clarification with regard to the application of the hypothesis for individuals who do not speak in the language they are learning to write (L2). Cummins (2001) provides a broader perspective of his own hypothesis and concedes that although literacy skills in a first language contribute to literacy skills in a second language, the linguistic interdependence hypothesis is not necessarily limited to those who speak, read and write in *both* languages.

Chamberlain and Mayberry (2000) reviewed research discussing the relationship between ASL and reading. The results of these studies clearly demonstrate a positive relationship between sign language and reading comprehension (see Chamberlain &
Mayberry 2000 for a more in-depth discussion). Indeed, it is not difficult to find numerous studies that can be used to support the argument that for many Deaf children, ASL and English are interdependent. Stuckless and Birch (1997) studied the influence of early manual communication on the linguistic development of Deaf children. They focused on whether early manual communication\textsuperscript{4} (ASL) impeded or facilitated English language development. One hundred and forty six Deaf children of Deaf parents and three hundred thirty-seven Deaf children of hearing parents in five schools for the Deaf were surveyed. The two groups of students were then matched according to age at enrollment in school, IQ score, and socioeconomic status, resulting in thirty-six matched pairs.

The comparison of the matched pairs revealed that early ASL acquisition facilitated higher test scores in Deaf children’s reading comprehension and expressive writing. Stuckless & Birch (1997) concluded, “Parents can be encouraged to introduce manual communication to their young Deaf children not only without fear of jeopardizing the development of conventional language skills when their children enter school, but with the expectation that doing so will have real advantages” (p. 78).

In spite of this early finding, ASL-English bilingual education remains controversial today, with a great number of educators disagreeing on which approaches best facilitate literacy and academic achievement in Deaf children. Knight and Swanwick (2002) suggest that educators of Deaf children must consider all underlying factors. For

\textsuperscript{4} The label of ASL was not widely used in 1966 and was limited to a few emerging ASL linguists. However, because Stuckless and Birch defined “early manual communication” as the introduction of signs prior to the age of two with Deaf parents (suggesting native signing proficiency), I will use ASL in lieu of “early manual communication” for consistency.
example, unlike hearing bilinguals, many Deaf children start school without a clear and solid foundation in a first language. Learning difficulties especially in regard to English acquisition and learning should not be attributed solely to the lack of exposure to English in their educational settings. In other words, although most Deaf children are exposed to English through numerous reading and writing activities in their classroom settings, they exhibit difficulty in acquiring the English language if they do not have a solid language foundation prior to schooling.

Studies continue to reveal higher levels of academic achievement in Deaf children whose parents were Deaf compared to Deaf children of hearing parents. It has been concluded that Deaf children with early exposure to ASL performed better on different academic tasks (Lane, Hoffmeister, & Bahan, 1996). More recent evidence has revealed that Deaf students who acquire the written form of English and are proficient in ASL, function as bilinguals (Evans, 1998).

Prinz and Strong (1998) also may have found evidence from Deaf children to support Cummins’ model of linguistic interdependence. They examined ASL proficiency and English literacy skills of different groups of children. To assess the level of correlation between ASL and English achievement, they conducted a study using a variety of ASL and English literacy measures. Those measures included the ASL signed story comprehension subtest, classifier comprehension, Woodcock-Johnson Psychoeducational Test Battery, and the Test of Written Language. They also took into consideration a multitude of factors such as the children’s IQ scores, date of birth, degree of hearing loss, and language(s) used at home. They found a significant correlation
between students’ ASL and English competency levels. In addition, the students with Deaf mothers outperformed their peers who had hearing mothers on measures of reading ability. Upon further analysis, the children who had hearing mothers who exhibited medium to high proficiency in ASL did not differ significantly in reading ability from those with Deaf mothers, revealing that exposure to somewhat fluent ASL rather than parental hearing status, was a critical variable. This suggests that proficiency in ASL is somehow interconnected with proficiency in written English.

The importance of early exposure to ASL is also revealed in the work of Nover and his colleagues (Nover, Andrews, Baker, Everhart & Bradford, 2002) who provided the curriculum for and assisted in the implementation of a two-year staff development program for teachers in ASL-English bilingual education instructional settings for Deaf students. Students who were taught by teachers participating in this program demonstrated significant improvement on their reading comprehension, English vocabulary and English language SAT-9 subtests, especially in younger children between the ages of 8-12. The profiles of these students showed that the higher achievers were the students who had higher IQ scores, increased use of sign at home and more time with bilingual teachers.

Knight and Swanwick (2002) state that research evidence is imperative to support the practice of sign bilingualism in the classroom. Their book summarizes some examples of research supporting bilingual education since 1995, focusing on successful programs in Sweden and England. Sweden, in particular, has been touted as a prime example of how a country experiences high levels of success in educating their Deaf
children. Due to positive attitudes toward minority languages and legislation regarding minority language education rights in Sweden, parents of Deaf children, regardless of their hearing status, learn to sign (Davies, 1991). Taking this one step further, legislation has been passed in Sweden providing parents with free sign language classes. In fact, parents who do not learn how to sign are at risk of having legal problems (Mahshie, 1995). This type of legislation comes from a deeply ingrained belief that sign language is the most accessible language for Deaf children and effectively serves as a building block for education of Deaf children including written language development (Davies, 1991).

*Integrative ASL-English Language Arts: Bridging Paths to Literacy*, written by Bailes (2000) summarizes her dissertation which focused on ASL-English bilingual education in the language arts classroom. She conducted an ethnographic study of four bilingual classrooms ranging from kindergarten to the 5th grade at an ASL-English bilingual charter school. One of the results showed that fluent bilingual teachers provided clear models for their students who, as a result, achieved high levels of ASL and English. She also noticed the importance of allocating languages according to a student’s age, need and skill in both languages. Other observations highlighted the importance of “world knowledge” and metalinguistic awareness in both languages. Consistent with the studies presented previously in this paper, Bailes’ (2000) study demonstrated a positive relationship between high levels of ASL and literacy skills.

The experiences of Deaf individuals with regard to literacy development are not exceptional. It is important to explore how the hypothesis applies to other groups of people in which L1 literacy was not developed prior to L2 literacy to shed more light on
how the linguistic interdependency hypothesis may apply to ASL-written English bilingualism. There are a number of examples from around the world where proficiency in an individual who does not read in his/her L1, yet demonstrate proficiency in L2 literacy.

In support of the linguistic interdependence hypothesis, Verhoeven (1994) conducted a study of 98 six-year-old Turkish children living in the Netherlands. This research found positive correlations between L1 and L2 in pragmatic, phonological, and literacy skills and weaker correlations in lexicon and syntax. From these results, Verhoeven concluded that conversational skills should be learned in L1 and promoted in classrooms. More interesting is that the children learned how to read first in Dutch (their L2) and their skills in L2 when learned first were positively correlated with their later L1 literacy achievement.

Verhoeven’s (1994) also described another study that revealed positive associations between Chinese and English literacy skills of Chinese students living in Seattle, Washington. Verhoeven (1994) states “These results suggest that transfer of underlying cognitive skills occurred between the two languages, despite strong surface structure dissimilarities between Chinese and English (p. 386). He concluded, “The transfer of skills may not be so much at a linguistic, but rather of a metalinguistic, level of competence. Literacy skills in whatever language involve a high level of metalinguistic competence” (p. 408).

Brosh (1995) examined Arabic, a diglossic language and describes how speakers of Arabic diglossia have to acquire two separate varieties of the language. “In order to
read newspapers, magazines . . . a person needs to have a good command of written Arabic. On the other hand, to converse and communicate in everyday situations . . . it is necessary to know the particular, local spoken dialect” (p. 248). Brosh (1995) continues, “The switch from the written variety to the spoken one or vice versa is no means easy; it entails the learner’s acquisition of different vocabulary items and different syntactic and morphological rules and sounds” (p. 248). He discusses that content area schooling activities are frequently carried out in one language (the oral) and the written variety is only learned through reading.

To ascertain whether it was necessary to acquire a spoken variety of Arabic before learning to read and write, a group of students in Jewish-Israeli junior high schools were studied. Some were exposed to the spoken variety of Arabic in earlier grades while others were not. It was concluded that learning to speak Arabic prior to learning to read did not give the students an advantage. In fact, written Arabic was learned as a separate construct. More research is needed to determine whether this study is applicable to the acquisition of English. Is learning to speak English a prerequisite for learning written English? The scores of Deaf non-English speakers who are proficient in reading and writing English tell us that the answer is a resounding no.

In her dissertation, Hung (2000) provides an in-depth explanation of Chinese writing. She explains that the characters, called logographs are combined to make words and debunks misconceptions about Chinese writing: Contrary to popular opinion, Chinese characters do not provide information about how they are pronounced (only 48% provide partial information and this information is often misleading); and the characters
are not iconic in nature. Hung (2000) explains that phonetic characters are characters in their own right and they must be learned on a “character-as-a-whole basis” (p. 76). Children in China learn through reading, and by making connections with prefixes and suffixes such as fish + capital = whale. However, many of the morphemes do not logically connect with each other. Adams’ (2002) argument that children need to see a word 57 times before memorizing comes to mind here and it seems like a staggering amount given the number of words in a person’s vocabulary. The Chinese language certainly has an extensive vocabulary and children in China do become literate even without being able to sound out the words.

The experiences of Israeli, Chinese, Turkish, and other Arabic speaking children are largely comparable to the experiences of many American Deaf children on two points: 1) They learn to read by reading as their search for meaning is driving the process and decoding is a much more insignificant aspect to reading; and 2) Most were immersed in environmental print corresponding to the literate language being taught at their respective schools (e.g., books at home, letters, & e-mail).

To reiterate, Mayer and Wells’ (1996) argue that the linguistic interdependence hypothesis is invalidated in application to Deaf bilinguals because ASL is not a written language, and therefore, literacy skills cannot be transferred from ASL to the learning of printed English. The concept that ASL is not a written language is quite an obvious statement and not one that can be disputed. However, this argument is based on the premise that the academic part of the linguistic interdependence model consists solely of reading and writing proficiency. They have ignored the relevant ideas such as the
common underlying proficiency hypothesis indicating that proficiency in oral/signed/written L1 leads to a proficiency in L2 via a multitude of possible routes.

If academic language involves deeper cognitive concepts, we must now consider how Deaf children attain this high level of metalinguistic competence. Therein lies the possibility that language competency opens doors to literacy achievement by allowing Deaf children to talk about, think about, and analyze written forms of language in academic situations. Olson’s (1995) article provides a different perspective of written language as he delineates two clear fundamental beliefs about writing based on Vygotskian ideas: 1) Cultural, historical activities shape perception, action, and consciousness; and 2) The intellectual development of children should be viewed in part, as the acquisition of symbolic systems of the culture. He then presents an in-depth analysis of the history of the written language, arriving at the conclusion that it is a metalinguistic social construct.

In conclusion, research such as the ones previously presented in this literature review by Nover and his colleagues (2002), Bailes (2000), Knight & Swanwick (2000), among others, demonstrate a clear relationship in terms of skills between ASL and English and suggests that transference of L1 to L2 literacy is not limited to the acquisition of literacy in L1. Development of literacy skills is dependent upon the cognitive ability to make meaning, which in turn is dependent upon spoken/signed language. Increased signed/spoken language development is dependent on and contributes to cognitive abilities, which in turn is dependent on and contributes to the
development of literacy skills. In other words, research shows that reading and writing in the first language is not a prerequisite for literacy achievement in the second language.

**Reading Development in Deaf Children**

There is a paucity of research pertaining to literacy development in Deaf children under the age of five. It is highly possible this is because most literacy research is conducted in the classrooms, after children enroll in kindergarten. Another reason is that much of the literature found on Deaf children between the ages of 0-5 focuses on first language acquisition with an even greater focus on spoken language development and dealing with the “problem of deafness.”

Exploring literacy development in Deaf children is complex because of a number of variables (e.g., degree of bilingualism, age of L1 acquisition, language spoken or signed at home, and language of instruction at school). It is frequently stated that Deaf adults on average do not read above a fourth grade level, but these statistics are often based solely on standardized test scores (e.g., Kuntze, 1998; *Literacy of Deaf and hard of hearing students*, 2001). However, controversy surrounds the use of standardized tests as a full measure of reading ability and as Ewoldt (1981) states, “Standardized tests, although criticized by a number of educators and researchers in Deaf education, continue to be the major evaluation instruments for the reading of the Deaf in schools and in research. Standardized test scores provide no information about the underlying process by which Deaf readers attain meaning” (p. 60).

In other words, those tests provide information about how well (or how poorly) Deaf children perform when tested. Because standardized tests are often geared toward
white, middle-class, hearing children, it is possible that the tests contain material not within many Deaf children’s sociocultural realm. Furthermore, in my experience as a language arts teacher who has administered those tests, standardized tests are given indiscriminately to Deaf students including those with additional learning disabilities and varying language backgrounds, as well as students who have only just begun to learn ASL and/or English. Yet, the “average” test scores are used to lament the failure of Deaf readers as a whole.

Nonetheless, there is a general consensus that Deaf children have a harder time developing English literacy skills for a wide variety of reasons (Kuntze, 1998; Stewart & Clarke, 2003; Williams, 1994). It has been my experience that the general body of research related to Deaf readers focuses on the success of certain teaching methodologies, that language teachers should use to teach literacy skills, or on educational philosophies. Some tout the failures of reading achievement in Deaf children and offer educational remedies (e.g., Mayer & Wells, 1996; Williams, 1994).

_Cueing Systems_

Williams (1994) finds that early literacy development is possible in Deaf children. She also establishes her theoretical framework based on the work of Ferreiro, among others, and developed three research areas, some of which applies to this study: “What is the nature of the world of literacy for these children? How is written language experienced and used at home and within the preschool classroom? How do the children participate in and use written language within these literacy worlds? What literacy
knowledge and understandings do the children demonstrate as they participate within these worlds?” (Williams, 1994, p. 129).

Stating that there are very few studies that focus on early literacy development in Deaf children, Williams studied three prelingually and profoundly Deaf children between the ages of three and five years old. Two of the students were in an auditory/oral option preschool and one child was in the total communication option in the same preschool. Williams found that the language and literacy worlds of all three children were highly similar to each other and to those of hearing children and that all the children dealt with literacy in similar ways. Williams claimed that the children’s delayed verbal language acquisition did not significantly prevent them from development of early/emergent literacy behaviors. Williams concluded, “There is evidence that readers can gain meaning directly from print without phonological mediation (Forster & Chambers, 1873, Stotsky, 1987, Vygotsky, 1978). Could it be that the Deaf students’ poor literacy achievement is in part the result of instructional practices which have failed to emphasize meaning-based strategies and the orchestration of semantic, syntactic, and graphophonemic cueing systems?” (Williams, 1994, p. 150).

Ewoldt’s (1981) work is frequently cited in articles concerned with the reading development of Deaf children. Similar to Williams (1994), she has taken a psycholinguistic stance based on the reading model developed by Goodman and studied numerous Deaf children using miscue analysis, an assessment tool that explores children’s reading processes as they read aloud (Goodman, 1996). In her study, Ewoldt

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5 Auditory/oral programs promote intensive speech training and children communicate through listening, lip reading, and speaking (with their voices). Signing is often discouraged within these programs.
developed several research questions to frame her study of four Deaf children of varied ages ranging from six to sixteen years old reading twenty-five different texts. The students used sign language as a way to read aloud and their signs were analyzed for miscues. In other words, Ewoldt used signs as a bridge from English literacy in order to visually assess reading ability. Ewoldt’s (1981) research questions also relate to this paper: “In their use of cueing systems, do Deaf readers resemble hearing native-English readers, bilingual readers, or deficient language users? . . . Can Deaf readers use reading as a medium through which they can discover and build new concepts? Can they use reading to gain control over new syntactic patterns?” (p. 63) Ewoldt’s results led her to conclude that Deaf readers made use of cueing systems. In addition, although they did not always resemble native speakers of the English language, Deaf readers in Ewoldt’s study showed similarities to all three groups studied: native-English, bilingual, and deficient language users.

The child most resembling bilingual speakers also had the most control over written English. Furthermore, she was the most fluent in interpreting written text into sign. Ewoldt also found that all children in the study learned from the text itself. Using ASL to evaluate comprehension, Ewoldt found evidence that the repetition of words, concepts and patterns contribute to literacy development in Deaf children. In addition,

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6 The term “signs” is used in Ewoldt’s study. ASL was still not a widely used label during the early 1980s and because the children in the study attended a school that adhered to the Total Communication philosophy, the children used a mixture of sign forms when reading aloud. The Total Communication philosophy often involved teachers using both spoken English and ASL often simultaneously to communicate. Research shows that adults using this option often begin signing and using their voice simultaneously which lacks full linguistic input in any one language (Nussbaum 1999; Ramsey 1989).
she suggested that learning from print itself, mediated by the support of signed language, promotes literacy development in Deaf children.

Supporting the concept of learning from print, Kuntze (1998) states, “A widely accepted view in the field of emergent literacy is that reading and writing are considered primarily visual-perceptual processes involving the printed unit and sound relationship (Hall, 1987) . . . A probable explanation (for literacy success) is that they (literate Deaf individuals) have taken an alternative route. They more likely have acquired English competency simply through reading. English in print apparently serves as a major input in English competency” (pp. 1-2).

Maxwell (1984) conducted longitudinal studies of Deaf children and found that they displayed emergent reading behaviors similar to hearing children. Some characteristics were also found that were unique to Deaf readers. For example, the child in Maxwell’s study began by labeling pictures using signs, and then using illustrations to narrate a story, then focusing on sign print (pictures of signs) provided in the books and finally, she focused on the text and used fingerspelling. More information needs to be gathered on how Deaf children go from using illustrations to the text itself.

*Phonics, Phonemic Awareness and Deaf Children*

Before discussing phonics as it pertains to Deaf education, it is necessary to clarify the confusion of the word “phonemes” in relation to ASL. Although phonology in ASL has very little to do with phonics itself, the term ASL *phonology* is confusing and leads many to believe it has something to do with phonemes as it pertains to the spoken language. This confusion comes from the common understanding that the root of the
word *phon* relates to sound. The root of the word comes from Greek, meaning sound, speech, voice (Morris, 1979). The application of this term to ASL was perhaps done with the intention of validating ASL as a language. Phonemes are small units in language and ASL phonemes are small units of language in ASL, which are *handshape, movement,* and *orientation* (Valli & Lucas, 1993). The root of the word is misleading; ASL phonemes do not have anything to do with English phonology. Stokoe proposed the use of the words *cherology* and *cheremes* when discussing the smallest parts of ASL (Stokoe, 1960).

The Milan convention of 1880 declared that the best way to educate children is through intensive auditory and speech training (Strong, 1999). This declaration had a resounding impact on Deaf education throughout Europe and this pedagogical perspective remains prevalent in the United States today (Lane, Hoffmeister, Bahan, 1996). Through this oral-based paradigm, teachers traditionally based their instruction on a medical model in an attempt to ‘remedy’ the Deaf. This comes with the belief that the only way Deaf individuals are able to participate in the general hearing community is through the use of oral language. This also reflects the obsession with spoken English and that it is a prerequisite for reading. Oral education is synonymous with the attempts to eradicate sign language and viewed by the ASL Deaf community as oppressive (Lane, Hoffmeister, Bahan, 1996). This is perhaps because in oral circles, ASL is often still not completely accepted as a language, viewed as detrimental to the mainstreaming of Deaf individuals, or even because of the stigma surrounding general bilingual education.

On the other side of the spectrum, there is the belief that Deafness causes a unique ethnolinguistic situation that *necessitates* ASL (Erting, 1978). There remain numerous
factions in Deaf education and very few schools fully adhere to a bilingual-bicultural model. Through the decades, Deaf education systems (note: plural) continued to grow in different directions. Simply by surveying the internet, it is clear that there are a number of programs advocating different communication modes and instructional methodologies that focus on different aspects of teaching, including phonics.

As discussed in Chapter 2, the practice of direct phonics instruction with all children has been questioned and there are a number of perspectives regarding the definition and role of phonics as well as phonemic awareness. In nearly all the articles advocating the need for phonics or phonemic awareness for Deaf children, the questionability of phonics when used with children who have normal hearing is not often considered. The majority of the focus is on whether or not phonics can be used to teach Deaf children, and how this is possible.

For example, there are researchers who strongly believe that visual phonics (ways to ‘see’ the sounds of spoken language) is a vital strategy for having children access phonics (Marshall, Nussbaum, & Waddy-Smith, 1999). “Cued Speech is a sound-based visual communication system which, in English, uses eight handshapes in four different locations (‘cues’) in combination with the natural mouth movements of speech, to make all the sounds of spoken language look different” (National Cued Speech Association, 2001). In essence, cued speech is speech ‘on the hands’ that reflects phonemes and is supposed to facilitate communication between non-signing individuals and the Deaf. In her article, “Foniks for Deff Tshildrun?” LaSasso (1996) also discusses that it is possible to teach phonics through cued speech. She writes that speech ability is not a hindrance in
Deaf children’s ability to use phonics. However, the number of people who use cued-speech is quite limited. Children are limited to parents, teachers and perhaps a few other peers.

Phonics instruction is also incorporated in a variety of sign-language programs\(^7\). In Reading? Pah! (I got it!), Schimmel, Edwards, & Prickett (1999), concede that Deaf children face additional difficulties reading because of lack of access to English. Twenty students at the Mississippi school for the Deaf were given a planned instructional program that incorporated phonemic awareness, Adapted Dolch word lists, Bridge lists and Bridging, reading comprehension, ASL development and language experience stories. It is stated that “skilled Deaf readers make use of phonological information more often than average Deaf readers (Hanson and Fowler, 1987; Hanson, Goodall & Perfetti, 1991; Kelly, 1993; Schaper & Reitsma, 1993). Just how these skilled readers without significant hearing utilize the code to figure out a word or passage remains a mystery” (Schimmel et al, 1999, p. 299).

In terms of phonemic awareness, Paul (2000) writes that one of the most significant predictors of success in reading for any child, hearing or Deaf, is the ability to access phonological and phonemic awareness as opposed to speech perception or discrimination. Children need to understand whole sentences before proceeding to parts in the sentences and that they somehow understand individual units of words. Paul believes that the process of breaking down concepts needs to continue until children are

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\(^7\) I write “sign language programs” because not all utilize ASL and some use varying forms of manually coded English, and/or ‘Simultaneous Communication’ in which signs are expressed at the same time as the spoken English word.
able to analyze phonemes. “With respect to conventional reading in school, the tension between word identification and comprehension presents a false dichotomy; one that is not supported by a consensus of reading research (e.g., Paul, 1998; Snow et al., 1998). All readers tend to oscillate between the form (i.e., identifying the structure of letters, word, etc.) and meaning (i.e., comprehension of the word, sentence, story, etc.)” (Paul, 2000, p. 7). Paul states that teaching word parts (including phonemes), morphemes, become important in instruction and serves reciprocally with general whole-word meaning.

However, as Miller (2005) puts it, “Findings from some recent studies indeed suggest that the role assigned to phonology within the reading process of individuals with severe prelingual hearing loss may have been overstated (see, e.g., Izzo, 2002; Miller, 1997, 2002b, 2004c; Swanson, Trainin, Necoechea, & Hammill, 2003), and that the functioning of such individuals at the lexical level—the level phonological coding has been claimed to affect directly—is not noticeably different than that of their typically developing hearing counterparts (Miller, 2001, 2002a, 2004a, 2004b)” (p. 306). Miller (2005) studied 39 Deaf and hard of hearing children (some of whom had Deaf parents) who used both Israeli Sign Language and mixed forms of communication at home including spoken and manual language. They were given two word processing tasks and assessed based upon their comprehension of written text. Results showed that the word processing efficiency of these children was similar to hearing children.

Interestingly, parental hearing status was also considered in the study to explain some of the children who used deviant reading strategies to process the test sentences.
Miller (2005) writes that parents with hearing loss serve as ineffective language models when it comes to syntactic knowledge of spoken language because sign language uses a different syntactic structure. It could be assumed that children without access to the semantics of spoken language would struggle with written language. However, the children who had Deaf parents employed significantly more syntactic reading strategies. This suggests that these children demonstrated a higher reliance on syntactic structure. More investigation is needed as to whether this is one of the ways Deaf children bypass the need for print-sound coding.

Urmit Girgin presented his research study comparing the ability of Turkish Deaf students to decode print and actual comprehension at the International Special Education Congress in 2000. In his study, he used a retelling evaluation tool developed by Ewoldt and compared the students’ retelling scores with the teachers’ own evaluation scores (Girgin, 2000). He found that there was a great discrepancy between teachers’ concept of students’ reading ability and actual comprehension. None of the students did well during the retelling of the stories they read, but their teachers viewed their reading as highly effective because of their ability to sound out words. Girgin states that there was a severe lack of emphasis on meaningful comprehension. He concludes: “Because Turkish is a phonetic language, both hearing and hearing-impaired children learn to decode print quickly. This may lead the teacher to think that the child can read and not to realize that the child may have problems deriving meaning from what he/she reads,” and “As a prerequisite to reading parents and teachers need to concentrate on creating the type of environment for the hearing-impaired child where he/she will be able to develop
language skills” (Girgin, 2000, p.8). Girgin’s results mirrors studies presented in Chapter 2 as he writes that decoding AND making meaning is important for Deaf children. This is similar to the concept of using graphophonics in conjunction with semantic and syntactic cueing systems to make meaning as presented by Goodman (1996).

As with hearing children, there is a general consensus that highly skilled Deaf readers demonstrate higher levels of phonemic awareness. Paul (2000), LaSasso, (1996), and Marshall, Nussbaum, and Waddy-Smith (1999) all state research studies that show phonemic awareness is an important factor in reading ability in all Deaf individuals, including profoundly Deaf children. However, research is lacking as to how Deaf children of Deaf parents from native ASL backgrounds (who, as discussed earlier in this chapter, frequently demonstrate higher levels of reading abilities) within ASL-written English bilingual programs acquire phonemic awareness. Schimmel, Edwards, and Prickett (1999) write that phonemic awareness is necessary because educators certainly cannot expect children to memorize words. This concept is misleading because it has been demonstrated that children are able to acquire vocabulary through the act of reading itself, and that there are people who read in languages that they do not speak (see phonics discussion in Chapter 2 and in the Deaf and bilingualism section of this chapter).

Additionally, proponents of phonics for Deaf children fail to address two vital questions: 1) If phonics is supposed to create bridges between print and spoken language, what bridge is indeed created for Deaf children who do not use spoken language? and 2) Are there other ways in which children develop phonemic awareness or perhaps even awareness of patterns that exist in English print without direct phonics instruction?
In *Deafness & literacy: Why can’t Sam read?* Erting (1992) proposes that it is not the inability of Deaf children to read, but the general population’s inability to communicate with them. Vygotsky’s social learning theories are utilized to explain the lack of intellectual development. Deaf children are often denied full access to language and this is seen as central to educational failures. Moving from a pathological (medical) model to a visual model becomes important as well as addressing the communication difficulties at home.

*English Vocabulary Development in Deaf Children*

There is a long line of empirical research and research reviews documenting the low vocabulary levels of deaf and hard-of-hearing students when compared to those of hearing peers (Paul, 1996, 1998). Not only do the deaf and hard-of-hearing students generally comprehend fewer words from print, but their vocabulary knowledge seems to reflect the use of specific words in their own written language (Paul, 2003).

Paul’s (2003) quote refers to Deaf children’s acquisition of English vocabulary. In terms of ASL and English vocabulary development, Lederberg (2003) states that Deaf children of Deaf parents have a larger vocabulary in ASL than hearing children in their spoken language from 12 to 17 months of age, presumably due to ease of hand motor control compared to voice control. As Cummins (2001) discusses, a rich vocabulary in a first language lends itself to a common underlying proficiency for the acquisition of a second language. Although Deaf children of Deaf parents may have a rich body of lexicon in ASL, there is often no direct connection between ASL and print. However, is such a direct connection necessary? I will be revisiting the answer to this question throughout this dissertation. However, there are a few ways that ASL is directly linked to English, especially through fingerspelling. In the next subsection, I discuss the direct role
of ASL, fingerspelling, and initialized signs in the vocabulary development of Deaf children.

**The Role of ASL, Fingerspelling and Initialized Signs**

Chamberlain and Mayberry (2000) write that little is known about whether and how Deaf children utilize decoding strategies. They suggest that children use *sign-based decoding* in which they memorize words in print and make connections through meaning through the correlated signs. Another decoding strategy is labeled *fingerspelling-based decoding*. Studies are cited demonstrating a positive relationship between fingerspelling and decoding print. Interestingly, they found that teachers who were Deaf were more highly likely to employ a fingerspelling instructional strategy known as *chaining* or *sandwiching* in the classroom and it is suggested that they have an intuitive sense on how to develop their students’ English vocabulary. Chaining happens when a sign is immediately followed by the fingerspelled word, or vice versa. Sandwiching happens in a sign-fingerspell-sign discourse structure such as BEAR (sign) B-E-A-R (fingerspelling) BEAR (sign).

Padden and Ramsey (1998) studied 31 students in four different classrooms: a fourth grade class in a public school, a fourth grade class in a residential school for Deaf children, a seventh/eighth grade class in a public school and a seventh grade class in a residential school. They evaluated proficiency in ASL using the Verb Agreement Production and Sentence Order Comprehension tests. They also devised two tests to measure ability to recognize English counterparts when presented words through fingerspelling and in signs that use a handshape which corresponds to the first letter of
the word in English (known as initialized signs). The students’ most recent SAT-HI reading comprehension subtest score was used to evaluate reading ability.

The authors concluded that knowledge and skill in ASL appear to facilitate English literacy development. Specifically, fingerspelling and initialized signs contribute to the development of associative skills between ASL and English. In turn, this facilitates reading development when students’ associative skills are promoted through Discourse. Additionally, Padden and Ramsey (1998) state, “The contribution of ASL is not merely linguistic, but also cultural, as generations of Deaf readers have devised mediational systems specifically for the purpose of cracking the code of written language” (p. 45).

Padden (2006) provides an in-depth explanation of the role of fingerspelling in young children’s literacy development based upon a number of studies. Padden and Gunsauls (2003, in Padden, 2006) studied sign narratives of 18 native signers of different ages and backgrounds. They found that an average of 18% of the words were fingerspelled. Padden (2006) writes that children learn to fingerspell twice. The first skill of fingerspelling is acquired prior to children’s ability to read. As a natural result of living in native ASL homes, children learn to fingerspell words at very young ages.

However, children do not see each letter individually and appear to conceptualize the fingerspelled word as sign with specific sequences. To express themselves using the fingerspelled word, they may imitate the movement of the word, or include a few salient handshapes without fingerspelling each letter individually. Learning the second skill of fingerspelling is described as the ability to make connections between fingerspelled handshapes and the printed word (Padden, 2006). This is significant in emphasizing that
fingerspelling is not always inherently linked to the English word, and Deaf children do not need to wait until they understand alphabetical principles before they start to comprehend and express themselves using fingerspelling.

Andrews, Leigh and Weiner (2004) also hypothesize that fingerspelling is a useful tool in assisting Deaf children to store words in memory. They include a description of two hypothetical models in relation to the reading process when it comes to Deaf children. One model labeled “Reading by ear,” describes a visual process in which letters are recognized and turned into grapheme-phoneme correspondence codes. This model utilizes a speech process in which letters are linked into sounds and interpreted. It is acknowledged that this model does not necessarily apply to all Deaf children. 2) The second model, entitled “Reading by eye,” involves readers coding direct connections from graphemes directly into whole word meanings. Andrews and her colleagues surmised that the latter plays a significant role in how Deaf individuals read. Hence, the challenge for young Deaf readers is to acquire English directly through print itself and use sign language as a mediating tool in which to do so.

The following statement by Goodman (1996) is highly relevant here: “Some researchers have concluded that a large vocabulary is a prerequisite for proficient reading, but they’re wrong: vocabulary is the result of reading” (p. 123).

**Writing Development in Deaf Children**

For Deaf students, the early stages of writing are very similar to those of hearing students. They are beginning to understand that written symbols can be used to convey a message; they experiment with marks on paper which appear as writing-like symbols with the intention of communicating a message. They move through these phases in the same ways and at the same times as they do for reading (O’Halloran & Abate, 1997 p. 15).
In a study of Deaf children in kindergarten, Andrew and Gonzales (1991) examined free writing samples. They found that similar to hearing children’s writing development, the Deaf children went from scribbling, to printing single random letters, to strings of random letters, and then whole words. Eventually, some children developed phrases and sentences.

Mayer (2007) analyzes two studies that included 115 children framed by three levels of writing development based on Ferreiro’s work. She also found similarities between Deaf and hearing children’s writing during the early stages. In the first level, hearing children distinguish writing from drawing. During this level, children attempt to reproduce letters which may or may not look like actual letters but the children themselves differentiate written texts and pictures within their own work. Mayer writes, “An analysis of texts at this level reveals very little difference between the writing of hearing and Deaf children, and both appear to have achieved the understandings fundamental to this stage” (2007, p.416). For both sets of children, there appears to be no attempted relationship between the print and the actual signed/spoken word. At the second level, hearing children demonstrate an awareness of letter strings and that there are quantitative principles (limits to how many letters a word can have). During this level, children connect objects and texts directly. Children also begin using more conventional letter representations at this stage. Similarly to level one, Mayer writes that there is little difference between hearing and Deaf children at this stage.

During the third level, Mayer contends that the divergence between hearing and Deaf readers happens. Hearing children move to more conventional ways of spelling that
are largely sound-based. Mayer writes that at this level, hearing children are led by their phonological understanding of how print works and this is demonstrated in their invented spellings. Research demonstrating how Deaf children invent spellings is also presented. Through this research, it is shown that this set of children do exhibit knowledge of connections between signs and text. However, it is at this point, Mayer writes, that Deaf children struggle with being able to represent conventional words in print without having some sort of phonological knowledge to fall back on. She writes that although fingerspelling and some information from initialized signs (signs with the first letter represented such as “C” for chocolate) are used; Deaf children are unable to make clear links between English and ASL.

In discussing two areas significant for later success in reading and writing, and as an argument for the need for an English based face-to-face language, Mayer (2007) writes, “These are (a) developing a foundation in the spoken and/or signed mode of the language to be written (i.e., English) and (b) focusing on these strategies that allow children to make the most effective connections between face-to-face language and text” (p. 425). In considering fingerspelling as a bridge, Mayer also writes that it is inadequate as a substitute for phonological processing without presenting research proving its inadequacy. Although Mayer presents many strong points in her article, especially with regard to the need to bridge ASL and English, she continues to fail in considering research demonstrating Deaf children with a strong first language (i.e., ASL) as being more likely to succeed in literacy development. She also places intense focus for the need for phonological awareness as a precursor for writing and reading development and
discounts researchers such as Krashen (1999, 2001 in Mayer, 2007) who question phonemic awareness training.

Ruiz (1995) studied her Deaf daughter’s literacy development from three to seven years old following the model provided by Ferreiro. She chose to learn and use signed English with her daughter instead of ASL. The home environment is presented as language-rich with ample opportunities for her daughter to read and write (e.g., full access to television captions). Ruiz’s daughter also received encouragement to take risks with reading and writing. Interestingly, she found that her child developed hypotheses both similar and different to the ones developed by Ferreiro’s participants. Using studies involving hearing children (e.g., Ferreiro & Teberosky, 1982; Sulzby, 1992; and Harste, Woodward, & Burke, 1984; in Ruiz, 1995) she identified eight hypotheses that her daughter developed which paralleled hypotheses developed by hearing children. 1) Writing is a symbolic way to represent things. 2) Pictures need to touch the print when drawing and labeling. 3) Names are important and useful for writing. 4) More letters are needed to write the names of bigger things. 5) How the word looks helps you write it (using visual strategies for producing texts such as stable letter strings). 6) It is important to get as many of the correct letters in print as possible, but the order is unimportant. 7) When you write something fast or long, you can scribble. 8) Sound has something to do with writing. During the formulation of the last hypothesis, it is necessary to note that Ruiz’s daughter had some access to the concept of spoken language through her hearing parents.
Additionally, Ruiz also found that her Deaf child developed a print hypotheses based on signs and handshapes. 1) Letters and words can be fingerspelled. However, this is not limited to short words at a young age and more related to personal importance. 2) The shape of your hand when you sign a word tells you its first letter. This particular hypothesis lasted from the time she was four and a half until she was seven years old. 3) Sound-based strategies don’t help much when you’re Deaf. 4) If you add a /s/ to a plural word, you should add /s/ to other words in the same sentence. Ruiz (1995) concludes “Elena (her daughter)’s story suggests that given multiple opportunities for developing literacy, young Deaf children begin to write very early (p.214)” and “I have found that she did not need this well-developed internal phonemic system or the well-meaning sorts of phonemic awareness activities and direct phonics instruction many researchers and teachers consider indispensable. If Elena didn’t need it, could hearing children forego this path too?” (p. 216). The hypotheses Elena developed in both categories need to be examined further to explore their applicability to Deaf children who do not use Signed English.

Evans and Siefert (2000) reviewed literature that showed Deaf children borrow concepts from ASL to formulate invented spellings. Similar to Ruiz’s (1995) conclusions, they also found that Deaf children used handshapes as a clue to which letter a word probably starts with, regardless of whether the handshape actually reflects the letter the word actually starts with in English. Additionally, they found that letter substitutions occurred based on how the letters resembled each other on the hands rather than whether they sounded the same. As an example, K and P (in ASL, both letters have the same
handshapes, locations, but different orientations) could be substituted. Similarly, Williams (1999) found that children used information from sign language as reference points, making connections between fingerspelling and individual signs.

These few studies on Deaf children’s writing development reveal that Deaf children use what they know about their linguistic worlds in order to make sense of and create print. Most of the studies done were on Deaf children with varying backgrounds; including those who used oral language or a combination of different modes (e.g., Ruiz’s child used a manually coded English system as her primary mode of communication). Yet, it is still unclear how young Deaf children who have ASL as their first language start to create written text. Clearly, we need to continue to study how Deaf children with a strong L1 develop writing (and reading) in an ASL-written English bilingual environment. Evans and Siefert’s (2000) literature review as well as information provided in a variety of chapters in Marschark and Spencer’s (2005) book (e.g., Schirmer & Williams, 2005) provide some insight. However, more studies are needed to explore how Deaf children with ASL as their first, primary and native language develop writing skills.

Learning to Read and Write as a Social Phenomenon in Deaf Children

The social world provides reasons in which to write and an array of readers (including the ‘self’) to serve as an audience. Dyson (1993) argues that written language development cannot occur in an isolated vacuum. Writing happens within sociocultural contexts, which cannot be separated from historical, emotional, and economic influences. Within this concept, the development of Deaf children’s written (English) language skills
is undoubtedly unique as they access the social world and print largely through visual
means.

Research on the written language of Deaf children has typically focused on
grammatical features, semantics and assessment (e.g., Luckner, 1996). Although the
literature has an occasional mention of sociocultural impact on Deaf children’s literacy
development, I find that this type of focus emanates from a wide variety of researchers
who harbor different beliefs about how Deaf children should be taught. Even when
compared to the lack of research pertaining to early literacy development in Deaf
children, there is an even more serious gap in the research that focuses on the role of
social worlds in Deaf children’s acquisition of the written language.

This is especially worrisome because having established that written language
development cannot be separated from the contributing social contexts, and that
contributing social contexts must be brought into the classroom, we must consider the
implications for Deaf children. What is the role of social worlds on how Deaf children
learn to read and write? Clearly, rote memorization of English lexicon in print does not
feasibly develop one’s skill in writing. Reading develops writing, but that is only half of
it. Writing develops reading, writing develops writing, and finally, writing develops in
social settings (Goodman, 1996 & Dyson, 1993).

Because research shows that Deaf children develop writing in ways that are
similar to their hearing peers, one would expect that, like hearing children, the
sociocultural contexts and Discourse worlds surrounding Deaf children would have a
definite impact on their written language development. Through a study of young Deaf
children, Ewoldt (1985) found that preschool children interacted socially during writing time, and offered/received input from each other. Similarly, Conway (1985) found that Deaf kindergarten children wrote for purposes similar to hearing children’s. Williams (1999) also detailed the literacy worlds of Deaf children and found through observations, analysis of writing samples, and informal assessments that the children were immersed in literacy activities through their social worlds at home and in the school comparable to their hearing peers.

When considering literacy development in Deaf children in a social context, one cannot ignore the studies that demonstrate the importance of ASL in Deaf children’s literacy development. To reiterate what has been presented previously in this paper, Kuntze (1998) cites research showing a positive correlation between ASL and English proficiency levels, as well as studies revealing that Deaf children of Deaf parents often perform better academically than Deaf children of hearing parents. Kuntze (1998) concludes that, “With Deaf children, the issue is fundamental. They need a language that is biologically matched to them” (p. 3). Referring to tenets set forth by Vygotsky, Kuntze also believes that reading and writing skills can be mediated by meaningful interaction. Bearing in mind what Kuntze means by meaningful interaction and learning print from print itself, this undoubtedly needs to happen within a full linguistic context. Clearly, the early acquisition of ASL does not only provide a language base in which to acquire literacy, but an entire Discourse world upon which a young Deaf child draws for literacy development.
Conclusion: Chapter 3

In conclusion, we know that although many Deaf people struggle with literacy learning and development, the achievement of high levels of literacy proficiency is certainly possible. Similar to hearing children, Deaf children acquire reading skills by utilizing strategies and cues. They also develop hypotheses about literacy as they are learning to write. By reviewing the research related to ASL-written English bilingual education, it is clear that an accessible and natural language (such as ASL) is vital in order to provide the social means through which to communicate and mediate the printed word.

In this chapter, I reviewed the literature related to Deaf children and literacy development by looking at how Deaf children develop reading, writing and vocabulary skills as bilinguals. I also discussed the concepts of the linguistic interdependency hypothesis as well as phonics and phonemic awareness as they pertain to Deaf children. In Chapter 4, I discuss the research and methodology of this dissertation case study which is largely based on information gathered in Chapters 2 and 3.
CHAPTER IV: A FRAMEWORK FOR STUDYING YOUNG DEAF CHILDREN’S WRITTEN LANGUAGE DEVELOPMENT

There exists a general body of literature on Deaf people and their literacy development. However, as demonstrated in the literature review, there remains a need to study how young Deaf children who have full access to language from birth, acquire literacy as part of their normal language development. Because language and communication promote social interaction, and social interaction serves as the most important facilitator of literacy development, educators need to learn more about how Deaf children who receive full access to language parallel to that of hearing children begin to develop literacy skills from an early age.

It is clear from the research on both hearing and Deaf children that they do not wait until the first day of school before starting their literacy development. As a matter of fact, many Deaf children, regardless of language use, grow up in literate environments that contribute to the emergence of early literacy skills (e.g., Williams, 1994; Ruiz, 1995). Hearing children develop a natural curiosity about print and demonstrate a desire to understand text as well as a desire to express their ideas through writing (e.g., Owocki, 1999; Dyson, 1993). It can be assumed that given the opportunity, Deaf children develop the same curiosity and desires. Additionally, the studies discussed in this paper demonstrate that Deaf children are as capable of exhibiting early reading and writing behavior including developing their own hypothetical ideas about reading and writing, using cueing systems and implementing reading strategies, much as their hearing peers (e.g., Ruiz, 1995; Williams, 1999). In this chapter I present my research design for studying the phenomena of young Deaf children’s literacy development. In the first
section of this chapter, I discuss the design of the case study. I then provide information
about the child informants in this study, and finally, I discuss how I will collect, organize,
and analyze the data.

As the research shows, ASL can serve as a powerful means in which knowledge
and literacy development is mediated between children and more competent peers and
adults (Kuntze, 1998; Chamberlain & Mayberry, 2000). Further psycholinguistic and
sociolinguistic studies of emerging reading and writing behavior in children who
acquired ASL as a first language will likely provide valuable insight not only on Deaf
children’s literacy development but on how all children become literate.

Research Questions

How do young Deaf children ages 2 – 5 who use ASL from birth develop literacy
in home and school settings over a one year period?

- How do young Deaf children ages 2-5 demonstrate literacy development in
  their written work?
- How do young Deaf children ages 2-5 demonstrate their literacy development
  as they respond to books and other written material as they read?
- What role does phonological awareness play in the written language
development of young Deaf children ages 2-5?
- What role does ASL play in the literacy development of young Deaf children
  ages 2-5?
Case Study Design

To answer the research questions, I conducted an in-depth case study of four Deaf children within between the ages of 2-5. All four informants selected were the only children within their school setting who met the criteria set forth by the study: Each child had full access to language from birth and were developing emergent literacy skills. Qualitative research “seek(s) to understand a larger phenomenon through intensive study…” (Rossman & Rallis, 1998). In this case, the larger phenomenon being literacy development in young Deaf children who have access to language from birth. Merriam (1997) puts forth the concept that case studies are “intensive, holistic description and analysis of a single entity, phenomenon, or social unit” (p. 34). In this particular study, I examined the phenomenon of literacy development within a social unit of young Deaf children who share similar backgrounds and attend the same bilingual program.

“We believe it to be imperative that educational researchers acknowledge that the study of literacy development within the complex context of family life demands an equally complex theoretical and methodological framework” (Yaden & Paratore, 2003 p. 539). In Chapter 5, I provide an in-depth analysis of the children’s literate lives in order to respect the complex nature of family life as well as community and school lives. From the data itself, I identified prevalent themes framed both by the data gathered (e.g., interviews) and by the concepts put forth in the literature on both hearing and Deaf children’s literacy development. Although I looked for specific information on how Deaf children develop literacy within the framework established by the literature review, I also refrained from focusing upon a predetermined set of themes in order to obtain a fuller
picture. Merriam (1997) writes “The ultimate goal of qualitative research is to transform data into information that can be used.” Because this was a heuristic process, it was difficult to anticipate exactly how each data set would be compiled and analyzed prior to the study. Throughout the study, a clearer picture of prevalent themes and concepts emerged.

By relying on a variety of data gathering techniques, I provide a complete picture of each child’s literacy development. There exists a large number of published literacy studies utilizing this approach within a wide variety of social and learning contexts (e.g., Finders, 1997; Knoebel, 1999; Valdes, 2001). For example, Just Girls: Hidden Literacies and Life in Junior High examines the life of five 12-13 year old girls as they transacted with text within home and school contexts (Finders, 1997). More similar to the focus of this dissertation, Martens (1996) analyzes her daughter’s literacy development between the ages of 2-5 also using the case study approach. On a broader scale, One Child, Many Worlds, consists of eleven case studies with a focus on early language and literacy learning of young children from different parts of the world (Gregory, 1997).

An important and highly relevant feature of qualitative research recognizes that researchers are learners and they have personal epistemologies that they bring to the study (Merriam, 1997). As someone who has both professional and personal interests in this field, as well as personal experiences growing up as a Deaf person who highly values literacy, I acknowledge that my upbringing within the Deaf culture as a native ASL user may have played a significant role in how I analyzed and interpreted the data.
Ensuring the Validity of this Study

I did several things in order to maintain the truth value and integrity of this study:
1) My study was conducted over a period of time so that I could learn as much as possible about each of the informants’ literacy development; 2) I conducted member checks by verifying for accuracy with the parents and teachers involved in the study; and 3) I triangulated multiple forms of data (Merriam, 1997). Member checks were especially important for this study as much of the discussions, observations and interviews were done in ASL.

Because this dissertation is being written in English and because this was not primarily a study of ASL development, I decided not to use ASL gloss throughout this study. ASL gloss is a highly complex linguistic method of transcribing ASL onto print with notations to include grammatical features specific to ASL. This is usually done for the purposes of examining ASL as a language itself or for analyzing specific types of Discourse. Reading and interpreting ASL gloss is equally as complex as the language itself and is difficult for those to who do not know ASL and are not linguists to read and appreciate. Because this study focused more on conveying the responses as intended by its speakers, I decided that the best way to do so was to share the English interpretations in text form with my adult participants to verify accuracy. I directly translated information into printed English for later interpretation and analysis. The end result is similar to Ferreiro’s studies (e.g., 1982) which were originally in Spanish but frequently, the children’s responses are translated into English for readers of the language.
Prior to analyzing the data, I asked the adults involved in this study to review specific information including their respective narratives for accuracy and completeness. Additionally, each of the parents and teachers received components of the data analysis chapters related to their child/student, especially when it related to their family histories, to make sure each family was respected and that information that they felt comfortable sharing was included. It is important to note here that after the parents and teachers reviewed the information, each of them verified that the information was largely correct. In a few cases, minor details needed to be added to ensure accuracy.

To add to the strength of the study, I studied four children from highly similar backgrounds as opposed to studying only one child. By working with four primary informants, their families, teachers, and exploring multiple forms of data, I clearly identified patterns and themes that appear across the data. Additionally, two of the children are siblings and I also had the opportunity to observe their interactions at home and in school.

The success of this study was highly contingent upon my relationship with the parents, the teachers and the children. Each of the parents showed high levels of motivation for this study as they also hoped to learn more about their own children’s literacy development and wanted to support me throughout this process. The teachers and administrators at the school that the children attended also consistently demonstrated interest and willingness to commit to this study throughout the year. I acknowledge that this was in part due to the highly positive relationships including prior friendships between me and many of the adult participants dating back more than several years. This,
along with high levels of interest in their own child/student’s development, enabled me to conduct such a detailed and lengthy study with complete access to the children. Because of my beliefs in the importance of valuing participants in the process, it was vital for me to maintain a positive relationship as well as ensure that each person felt involved, empowered and their input valued throughout the duration of the study. None of the informants received compensation for their participation.

*The Children and Their Environment*

This study centers on the literacy development of four children who were at different stages in their literacy development. All of them lived within two miles of each other in a middle-class region in close proximity to the state school for the Deaf. In addition to their physical locality, the children had much in common.

*The Children*

Although each of the children had much in common with each other, each child involved in the study was a unique individual with his/her own personalities, with independent ways of thinking and perceiving their worlds. The same can also be said for each family with their own dynamics, makeup, upbringing, backgrounds and belief systems.
Table 1. *Ages of informants, Years in School, Gender, and Classifications within Families and Classrooms*

<table>
<thead>
<tr>
<th>Child</th>
<th>Age:</th>
<th>Age:</th>
<th>Years in School:</th>
<th>Gender</th>
<th>Family</th>
<th>Classrooms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lindsay</td>
<td>2-1-2007</td>
<td>2-29-2008</td>
<td>2-10</td>
<td>Female</td>
<td>#1</td>
<td>Pre-kindergarten (2/1/07-6/1/07) Kindergarten (8/20/07-2/29/08)</td>
</tr>
<tr>
<td>Dustin</td>
<td>2-7</td>
<td>3-8</td>
<td>0-9</td>
<td>Male</td>
<td>#1</td>
<td>Toddler (2/1/07-6/1/07) Preschool (8/20/07-2/29/08)</td>
</tr>
<tr>
<td>Kieran V.</td>
<td>2-3</td>
<td>3-4</td>
<td>0-9</td>
<td>Male</td>
<td>#2</td>
<td>Toddler (2/1/07-6/1/07) Preschool (8/20/07-2/29/08)</td>
</tr>
<tr>
<td>Kieran E.</td>
<td>2-9</td>
<td>3-10</td>
<td>0-9</td>
<td>Male</td>
<td>#3</td>
<td>Toddler (2/1/07-6/1/07) Preschool (8/20/07-2/29/08)</td>
</tr>
</tbody>
</table>

Table 1 provides information on the children’s ages at the beginning and end of the study as well as the length of schooling at the beginning of the study and classification of the children within their own families and in the school setting. In this study, the children’s actual written names are used with the permission of their parents. The written form of their names became important to this study as artifacts containing names provided a large amount of significant information about their literacy development.

When literacy development in Deaf children is discussed, the degree of Deafness (e.g., moderate, severe, profound) is usually presented. Due to the belief systems and cultural values of the parents, at the beginning of the study, the three youngest children had only received the requisite basic hearing screening for eligibility at the school for the
Deaf. Only one child (Lindsay) wore hearing aids, largely due to her own motivation and interest. However, during the year of the study, she wore them infrequently and she had full autonomy in deciding when she wanted to wear them. It was known at the beginning of the study that Lindsay, Dustin and Kieran E. had some residual hearing as they responded to loud sounds in the environment. However, because they did not have natural access to spoken language and given that ASL was the primary language of all face-to-face communication at home and in school, spoken English and auditory ability is not currently considered as a significant factor in the children’s lives or literacy development.

Their Parents

All of the children had Deaf parents and grandparents who are ASL-English bilinguals. Each family moved to the state when receiving jobs at the state school for the Deaf at different times and each parent was heavily involved in the education field in different capacities (i.e., mental health counselors, teachers, administrators, and teacher specialists). As demonstrated in the study itself, each parent was highly involved in their child’s literacy acquisition and as a natural part of their parenting style and frequently participated in social conversations that discussed, analyzed and reflected upon their child’s language and literacy development. All of the parents had obtained at least a Masters’ degree in their respective fields.

Their School and Teachers

The children attended an ASL-English bilingual school that provided its teachers and administrators with intensive training on bilingual and literacy development
principles. All of the children involved began attending the toddler classroom between 18 months and 2 years old part time with a Deaf ASL-English bilingual teacher. In the afternoons, they attended an independent educational daycare program within the same building operated by hearing adults who have some signing skills. In this program, the Deaf children were integrated with hearing children of the same age. After each child entered preschool, their time at the day care was substantially reduced as their time within the school for the Deaf’s program increased. By happenstance, only one participant in the study was hearing. She was a teacher of the pre-kindergarten program who had been teaching young Deaf children in a variety of capacities for several years using ASL as the primary language of instruction.

Data Collection and Data Sets

In order to address both my main and supporting research question, the data from this study consists of the following: 1) Periodic interviews with the children, their families and their teachers; 2) Anecdotal data provided by both teachers and parents; 3) School and home observations; and 4) Child work artifacts. For a period of one academic year, the interviews were conducted along with regular observation sessions of each child’s transactions with print. Furthermore, artifacts created by each child were collected demonstrating their reading and writing development.

All of the above data were compiled, organized and categorized according to themes found within the study itself as well as the framework set by concepts presented in the literature review.
### Table 2. Data Sets

<table>
<thead>
<tr>
<th>Data</th>
<th>Source/Location</th>
<th>Method of Collection</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interviews</td>
<td>Parents: Home</td>
<td>Interview notes/transcripts</td>
<td>Four formal interviews per family. Ongoing informal interviews.</td>
</tr>
<tr>
<td></td>
<td>Teachers: School</td>
<td>Interview notes/transcripts</td>
<td>Two formal interviews per teacher. Ongoing informal interviews.</td>
</tr>
<tr>
<td></td>
<td>Children: School &amp; Home</td>
<td>Conversation notes/transcripts</td>
<td>1-2 times a week during various literacy events (More for my own child)</td>
</tr>
<tr>
<td>Anecdotal</td>
<td>Parents</td>
<td>E-mail &amp; anecdotal notes from conversations</td>
<td>Varies for each child. A total of 67 such email and anecdotal notes were collected for children from families 1 &amp; 2.</td>
</tr>
<tr>
<td></td>
<td>Teachers</td>
<td>E-mail &amp; anecdotal notes from conversations</td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>Children: School</td>
<td>Observational Notes &amp; Transcripts</td>
<td>Once a week (Averaging 30 minutes per class during various literacy times)</td>
</tr>
<tr>
<td></td>
<td>Children: Home &amp; Social Settings</td>
<td>Observational Notes &amp; Transcripts</td>
<td>For children not within my own family, they were formally observed a total of three times each. Informal observations happened frequently.</td>
</tr>
<tr>
<td></td>
<td>Children: School &amp; Home</td>
<td>Early Literacy Checklist</td>
<td>Beginning and end of study</td>
</tr>
<tr>
<td>Child work artifacts</td>
<td>Children: School &amp; Home</td>
<td>Actual work samples</td>
<td>Throughout the year</td>
</tr>
<tr>
<td></td>
<td>Writing tasks: School</td>
<td>Actual work samples</td>
<td>Beginning &amp; end of study</td>
</tr>
</tbody>
</table>
Table 2 provides information about the type of data collected, where the data were collected, the method of collection and the frequency in which the data were collected. Each of the data sets is discussed in further details in the following sections:

*Interviews*

Throughout the study, I conducted phenomenological interviews (Rossman & Rallis, 1998) with the goal of gathering information based primarily on the children’s literacy experiences as well as the social context in which the children grew up that impacted their literacy development. The interviews were semi-structured and consisted of a modified form of Seidman’s (1998) three interview series. The interviews were conducted in ASL and I recorded the information through notes. After each session, I expanded upon my notes and transcribed the information into standard written English. To ensure the accuracy of my notes and data, each adult interviewee was asked to review the transcripts of their own interviews. In addition to the scheduled interview sessions, I conducted informal interviews and conversations with the teachers, parents and children throughout the year. These sessions were largely dialogic interviews as discussed by Rossman and Rallis (1998). See Appendices E-G for interview question samples.

*Parents*

There was an initial interview with each set of parents conducted at the beginning of the study which took place in March 2007. The interviews were conducted at their respective homes except for one session which took place at my house. The interviews focused on collecting information about the children and families’ backgrounds, literacy histories, beliefs and activities. The lengths of the interviews were contingent upon each
family’s answers and level of participation. The initial interview took a total of about two hours per family. For Family #1, I asked the parents for their perspectives on both of their children’s literacy development and how they perceive their children are different and/or similar.

Throughout the year, there were two additional formal interview sessions that took place during June 2007 and September/October 2007 with each set of parents, taking place in their own homes. These interviews consisted of open-ended questions asking parents to describe new literacy and related ASL development events that transpired during recent months. At the beginning of the study, it was expected that the interviews would be more frequent. However, as information was continually gathered through anecdotal notes and email messages, the need for ongoing interview sessions lessened.

At the end of the study, a final interview was conducted during the months of January/February 2008 with each set of parents in their respective homes. I asked parents to reflect upon their child’s literacy development throughout the year, and upon their expectations for the coming years. In addition to the formal scheduled interview sessions, I had ongoing informal interviews with the parents that consistently revealed more data.

Because Family #3 is my own family, I informally interviewed my husband using questions similar to what the other adults were asked. I wrote down my own answers only at the beginning. In between, I maintained anecdotal data (see anecdotal data section) on my own child and recorded my husband’s observations as appropriate. As a result, there was no need for ongoing formal interviews within my own family.
Teachers

Interviews with teachers proved to be more complex than anticipated. The school’s initial plans were to keep the children with the same teachers for two years. However, due to unexpected staffing changes, the children changed teachers from one school year to the other and additional interviews were needed. With each teacher, the initial interviews conducted both inside and outside their respective classrooms which focused upon documenting their classroom schedules, teaching beliefs and classroom activities. The lengths of the interviews were contingent upon each teacher’s answers and level of participation. Generally speaking, the initial interviews took an average of two hours per teacher. The interviews were recorded through a note-taking and transcription process similar to the parents’ interviews. The teachers were also asked to review the transcripts. Two of the four teachers took the opportunity to add information that they perceived as significant but did not include during the formal interview sessions.

At the end of the study, a final interview was conducted with the children’s preschool and kindergarten teachers in February 2008. I asked the teachers to reflect upon their students’ literacy growth throughout the current school year, the instructional strategies that they used and whether or not they felt their strategies were successful. Because it was not the end of the school year, I also asked them about their instructional plans for the next few months. Because two of the teachers had more than one informant in her classroom, we discussed all of the children during the formal interview sessions but focused upon only one child at a time.
Throughout the study, there were brief informal interviews that frequently took place in the teachers’ own classrooms. Occasionally, I directed questions to the teacher(s) when the students were working. I asked follow-up questions in-person and via e-mail for clarification purposes. According to my notes and email documentation, a total of at least 40 brief informal interview sessions took place that presented information relevant to the study. These interviews consisted of open-ended questions in which I asked the teachers to describe new literacy and related ASL development events that transpired during class time. Each co took the equivalent of approximately 5 to 15 minutes per child, depending upon the amount of information involved.

Children

I conducted at least one formal interview session per child. Lindsay and I had three formal sessions. However, I had conversations with all of the children on an ongoing basis throughout the year at spontaneous intervals at home and in their classrooms. The interviews that I did with the children were based on their respective age groups. Because the children would most likely to be distracted and perhaps intimidated by a formal set-up, the interviews were largely informal and conducted both at home and in the school with me taking notes. With the exception of my own child, the parents and teachers assisted in confirming my understanding of each child’s Discourse for accuracy, especially with the younger children whose ASL was still developing and I was not entirely familiar with their developmental handshapes, locations, and/or movements.

For example, with Lindsay (the 4-5 year old), I asked open-ended questions such as “Why did you pick this book?”, “What does this book talk about?” and “What did you
just write?” There were some close-ended questions such as “Do you like to read?” For Dustin, Kieran V., and Kieran E., I focused mostly on wh-questions such as “What is that?” (Pointing to a book), “Who is this?” (Pointing to characters), and so forth. The level of questioning for this group evolved as the children grew older and displayed a higher level of ability to think and respond critically about their reading and writing.

*Analysis of interviews:*

In order to analyze the utterances themselves, I relied on concepts put forth by Gee (1999) who discussed the importance of situated meanings and cultural models when analyzing Discourse. In other words, researchers discern deep meaning of language spoken (or signed) based on our own cultural and experiential schema. It became necessary to consider the impact of my own view on the potential differences of meaning of concepts presented by the participants. Performing member checks with the adult participants became critical in ensuring the accuracy of the information.

To narrow down the amount of data, significant concepts were outlined and within these concepts, I focused on themes that emerged from the interviews (Rossman & Rallis, 1998). The themes were categorized based on both, emergent themes and topics put forth by the research questions. After coding, the data were reorganized based on thematic information in order to create a profile (Seidman, 1998).

In Chapter 5, I provide an overview of the children’s literacy lives and then discuss information gathered directly from parents and teachers. In this process, I relied heavily on the themes that were largely consistent among different participants (e.g., *Reading and writing should be fun)*. In Chapter 6, I provide an overview of the children’s
literacy development that relied on themes largely established by the literature review (e.g., written language hypotheses that the children developed).

Anecdotal Data

An unexpected data set that I have labeled anecdotal data emerged during the study. This is different than the informal interviews because the information garnered from this data set was not solicited and I did not ask any questions. Because all of the parents and teachers had access to me at the workplace and on a social basis, in-person and through email, I frequently encountered comments such as “Hey, guess what (child) did today?” or “(Child) did a neat thing today, let me show you…” As it was impossible for me to observe the children all day, everyday, I found that this type of data provided some of the most significant information, especially as it came to documentation of new developments. I also received email messages from parents who were on summer vacation with their children, informing me of different things that their children were doing. A total of 67 pieces of information were gathered from the teachers and parents of Families 1 and 2. Additionally, I often found myself scrambling for a pen and a piece of paper so that I could take notes on my own son’s literacy development during the holidays, weekends and in the evenings.

Similar to the interviews, I categorized the anecdotally collected information in themes identified by the study. I also organized the information through the lens of the literacy development framework established by other researchers presented in the literature review.
Observations

I conducted a variety of formal and informal observations of the children in their homes and in their classrooms throughout the study. I formally observed the children at least three times each in their homes. Within my own family, the observations were less formal and more ongoing on a daily basis. In school, because of the nature of the set-up, I often informally observed the informants on a daily basis when dropping in the classroom, the school lobby or during storytelling time. In the following subsections, I discuss specifically how the observations proceeded at home and in the school setting. Additionally, I discuss the Early Literacy Checklist and miscue analysis as observation tools.

School

I conducted semi-regular observations of each child’s interaction with print within their own classroom. Because literacy happened throughout the day the observations took place in school at various times each day. In one classroom setting, there was a one-way mirror in which I could sometimes observe without interrupting class. In other classrooms, I stood in the hallways outside the classroom and looked through the windows. Sometimes, I entered the classroom and interacted with the students. The observations occurred at least once a week for a total of about thirty minutes to one hour at different time intervals. For example, I observed library time, group story signing time, and quiet reading time. I was also frequently able to observe spontaneous literacy events when I dropped my own children off to school in the mornings. I observed the informants reading to themselves, reading interactively and attending to sign aloud sessions. I also
observed the informants either drawing or creating print (e.g., their own names, the alphabet, & stories). Throughout the year, I also used the information from the observations to guide questions during the interviews.

Home

For families #1, & #2, I observed and took notes of spontaneous interactions with print at random times as I regularly saw the children in their home environment and in social settings. For family #3 (my own), I had unlimited access to my own child and did not plan any formal observation sessions.

In order to categorize data from the artifacts and observations, including the Early Literacy Checklist, I used thematic analysis in which I looked for salient concepts that emerged from the study (Rossman and Rallis, 1998). The final analysis of the data was largely based on the theoretical framework presented in conjunction with the findings from the interviews, with a search for evidence of written language development in relation to social contexts within the themes.

Early literacy checklist

The teachers were required by the school to fill-out and update the Early Literacy Checklist at the end of each academic quarter. I used this information to pinpoint different developmental milestones and triangulated this information with the other data. This was helpful in seeing whether or not my observations of a child’s literacy development matched the teachers’ and in keeping documentation of what abilities were acquired and when (see Appendix H for the checklist). In Chapter 6, I also developed a
table (see Table 4) to demonstrate the informants’ literacy growth throughout the study as documented by the teachers.

Miscue analysis

Miscue analysis as presented by Goodman, Watson & Burke (1987) provided me with a framework in which to observe the children reading. Although miscue analysis was not central to this study, I consistently analyzed the strategies that the children used to read. In order to do this, I paid special attention to the miscues that the children made when transacting with text (Goodman, Watson & Burke, 1987). Using a simplified form of retrospective miscue analysis (Goodman & Marek, 1996), I also asked the children about their miscues by asking, “why did you say that?” or “why do you think it says that?” and analyzing whether their answers informed me of their literacy development.

For the younger informants, very little was revealed as they were not yet ready to reflect upon their own miscues. I observed Lindsay reading aloud on numerous occasions and documented the miscues that she made and took notes of the strategies she used to comprehend text. I also did a more formal assessment of Lindsay’s reading by taking transcribed notes of the miscues that she made along with her self-corrections at the end of the study during an interview session and then asked her about the miscues she made to expand upon my understanding of her reading abilities.

Child Work Artifacts

The parents and teachers were asked to save all work artifacts involving drawings and written texts. Depending on the nature of the artifact, I used a digital camera or scanner to preserve the artifact for analysis. As part of their family routine, Family #1 had
been taking pictures for quite some time of all of their children’s written work and
drawings. This included photos of multimedia and etch-a-sketch artifacts. I was able to
screen through several hundred work samples for both of their children. Family #2
supplied some work samples, and I received most artifacts through their son’s teacher. As
for Family #3, my family, I kept every piece of drawing and written work that my son
produced. This amounted to a total of at least four hundred work samples produced in
school and at home for all the children during the study. Often, teachers would
voluntarily scan or take pictures of different events and email them to me. Sometimes, it
was necessary to ask parents or teachers for additional information about the writing
event surrounding the artifact. During this process, significant work samples were
selected to be categorized and analyzed along with the other data sets.

*Writing tasks*

Because of Lindsay’s age, she was asked to participate in a modified version of
the basic general writing and name writing tasks developed by Ferreiro and Teberosky
(1982), which were expanded upon by Yaden and Tardibuono (2004). Based on these
two studies, Lindsay was asked to write her name, along with several words that were
signed and fingerspelled to her. These tasks were performed twice, at the beginning and
at the end of the study. See Appendix I for the writing task guidelines.

In order to analyze the information gathered from the writing tasks and student
work samples, I used the classification system developed by Ferreiro and Teberosky
(1982) as discussed by Yaden and Tardibuono (2004). The *writing levels* classification
system enabled me to identify the levels that the children were functioning at for comparative purposes.

Table 3. Writing levels classifications

<table>
<thead>
<tr>
<th>Writing Level</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No attempted relationship between print and actual signed/spoken word. No (or very few) conventional letters</td>
</tr>
<tr>
<td>2</td>
<td>Demonstrates awareness of letter strings and that writing must contain a certain number of characters. There is often a mixture between conventional and non-conventional letters</td>
</tr>
<tr>
<td>3</td>
<td>Attempts to apply sound value to words. This level often represents the emergence of the syllabic hypothesis in hearing children.</td>
</tr>
<tr>
<td>4</td>
<td>Applies both, the alphabetic principle as well as the syllabic hypothesis.</td>
</tr>
<tr>
<td>5</td>
<td>There is a direct alphabetic/sound value for each grapheme.</td>
</tr>
</tbody>
</table>

It is significant to note that these levels presented above differ slightly from the levels discussed by Mayer (2007). Although the first three levels are highly similar, (see Chapter 3 for an in-depth explanation of the levels as presented by Mayer) the writing levels as presented above expands upon the third level to discern differences between children using syllabic information in their writing and children using conventional spelling. Although Yaden and Tardibuono (2004) focused on how children applied sound value to their writing in levels 4 and 5, I used levels 4 and 5 as a way to measure whether children used conventional spelling in their writing.

Conclusion: Chapter 4

In this chapter, I presented the research design for this study. The analysis of selected data based upon salient themes take place in Chapters 5 and 6. In Chapter 5, I address the social context in which the children in the study are immersed. This chapter is
heavily dependent upon the interviews, and general observations about the children’s lives. In Chapter 6, I address the children’s literacy development, especially through work artifacts, child interviews and parent/teacher observations as well as my own. Chapter 6 is also framed by what we already know of both hearing and Deaf children’s literacy development. In both Chapters 5 and 6, I provide an in-depth analysis of the literacy worlds of four young Deaf children.
CHAPTER V: THE LITERACY WORLDS OF FOUR YOUNG DEAF CHILDREN

In a discussion that focuses on developing a working description of literacy, Wasik and Herrmann (2004) write:

We see, then, that literacy can be described both as a natural or informal occurrence seen in everyday situations and experienced in home, family, and community life (Allison & Watson, 1994) and (the more common view) as a formal occurrence in the context of organized instruction in educational settings (Wasik, Dobbins, & Herrmann, 2001). Viewing literacy as a natural development is consistent with the view of literacy as a social practice integrated with other social practices (Delgado-Gaitan, 1994; Gee, 2001; Pellegrini, 2001; Street, 1984)” (p. 4).

There is little doubt that children’s literacy lives are dynamic, with different intrinsic and extrinsic forces working together to develop reading and writing abilities (Alexander and Fox, 2004). Because all children’s literacy development is influenced by a number of variables including their own personalities, abilities, families, communities, schools, and peers, I have set up this chapter to provide a sense of the literacy lives of the four children who are the focus of this research. Roskos and Neuman (2002) also find that the environment highly influences children’s literacy acquisition. Environments manipulated by adults to facilitate access to print and provide space for interactive learning lends to increased literacy success. “At issue is creating environmental networks of literacy information that scaffold young children’s thinking and language all along the developmental continuum” (p. 289). The main research question: How do young Deaf children ages 2 – 5 who use ASL from birth develop literacy in home and school settings over a one year period? can not be addressed without considering the literacy lives of Lindsay, Dustin, Kieran V., and Kieran E. and the role that each adult in their lives play.
This chapter is divided into three major sections. The first section introduces the children and their worlds in three separate subsections. The first subsection introduces the children and their homes. This section is largely based on information collected through interviews with parents as well as my own observations. The second subsection focuses on the school and discusses the children’s classrooms. For this, I rely on information gathered from the teachers as well as my own documented observations. The final subsection focuses on the community. In describing and discussing the community, I rely on my own experiences as a member of this community. I also use information from parents gathered during the interviews on how their children typically access the community. After each subsection, I provide a brief discussion on the impact on the home, school and community on the children’s literacy development.

The second section focuses on the experiences and beliefs of the parents and teachers. This section is based on salient themes that arose during the interviews. I also provide an analysis after each theme with a focus on how the beliefs of parents and teachers influence the literacy development of the children in this study.

The final section of this chapter focuses on the social worlds of the children as it relates to the children’s literacy development. In this section, I take a brief look at how the children interact socially with others through ASL during literacy time and discuss how this information provides insights into each child’s literacy development. This section is based on information gathered from the interviews as well as anecdotal data provided by the teachers. Because the children’s social worlds and ASL cannot be separated and harbor significant implications for literacy development, I also discuss the
role of ASL and fingerspelling. The final section also provides a partial answer to the following research sub-question: *What role does ASL play in the literacy development of young Deaf children ages 2-5?*

*An Introduction to the Children and Their Worlds*

In this section, I provide the sociocultural context for the study; including information about the personalities of the children through the lenses of their own parents, lives in their homes, their classrooms and their community. The majority of information was gathered through interviews with parents and teachers as well as my documented observations of the home, classroom and community environment.

*The Children and Their Homes*

This subsection is divided by each of the individual informants, Lindsay, Dustin, Kieran V. and Kieran E. I present the children using their parents’ own narratives. At my request, each parent sent me an email describing their children and I compiled both parents’ statements into one descriptive narrative based on common concepts found in both statements (my husband compiled Kieran E.’s narrative). I also had the parents read the descriptive narratives that I developed to ensure accuracy. After the parents’ narratives, I rely on my own observations to describe literacy in their homes. My observations were shared with the parents to ensure that the information I include is accurate. Because two of the informants, Lindsay and Dustin, are siblings and share the same home, I provide a description of their home after the descriptions of both children.

As one of the informants, Lindsay, was old enough carry an in-depth discussion of her own thoughts related to reading and writing, I also include her narrative in her
literacy overview in her own words also transcribed and translated from ASL to written English. Although the younger children also talked with me about their own reading and writing, their discussions mostly revolved around likes and dislikes. For the younger children, I relied more on the input of the external data sources, especially the parents and teachers to provide me with a general understanding of the children’s overall literacy development.

*Lindsay*

*Figure 1. Lindsay: 19 months old (Photo courtesy of Family 1)*

*As narrated by Lindsay (and Dustin’s) parents via e-mail:* Since the day Lindsay was born, she has always been curious about everything and is an observant girl. When meeting you, she might be shy for the first few minutes but after that, she will not leave you alone. She is a very energetic girl who seems like she can be on the go all the time, even in her sleep. She is perpetually filled with questions and when an answer is given, that answer becomes her new “why” question. A bit of a mother hen, she tends to worry about other children. Due to this aspect of her personality, she often helps others and tries to teach and explain things to them. She has always loved school.

Reading has always been Lindsay’s passion. She has always asked for someone to read with her during different times of the day. She enjoys reading with somebody, but she does read on her own from time to time. She can be a perfectionist when it comes to writing and does not like to make mistakes. Writing has not been her favorite activity but the older she
gets, she becomes more comfortable with it and more willing to take chances. Every night, she reads or writes in her bed before falling asleep.

As narrated by Lindsay, age 5-10. (The following was transcribed and translated from ASL to English): Yes I like to read. I like to read the Eloise books. I think I like to read everything. I like to read with mom and dad and my teachers. I am excited when I get books from Santa. I like knowing who Eloise is and I know how to spell her name, E-l-o-i-s-e (during the interview, she made sure I transcribed Eloise correctly). Reading is fun because I like seeing different things happen in the book.

My teachers and my mom and dad are good readers. If I don’t know a word, I ask my mom and dad and teachers. They teach me how to read and I learn and learn and then understand. Yes I like to write. I like to write about ET because I like the movie. Sometimes I write pictures. I write letters for my cousin and for other people like my aunt, cousins, school and many different things. I write stories sometimes and I am a good writer.

Dustin

Figure 2. Dustin: 12 months old (Photo courtesy of family 1)

As narrated by Dustin’s (and Lindsay’s) parents via e-mail: Even when Dustin was born, he was very satisfied with life in general and this is still true today. He is just a happy, jolly and mellow little boy. Generally, it is very difficult to get mad at him. He is everybody’s friend and especially enjoys physical activities such as climbing, riding, and jumping without much fear. He absolutely hates missing school.

Because Dustin is our second child and relatively quiet, we worry that we may forget him as we end up unintentionally devoting our attention to our oldest. Dustin does enjoy literacy activities when his
family asks him to bring a book or do some writing. He rarely initiates these activities but he is beginning to show some interest reading books in bed before bedtime daily. Dustin seems to enjoy writing but does not write often at home. It seems like he enjoys writing at school instead.

We have noticed him starting to tell us in detail about a specific topic that he is interested in or has recently learned. He enjoys watching and being part of conversations around him. He loves to play by himself or with anybody using vivid imagination and creating wild stories. We think that we underestimate him as he hardly seems to be paying attention at times, especially when we are talking to his sister but then a few days or even weeks later, he’ll make some comments that let us know that he was, indeed, paying attention.

Because we are family friends and we see each other frequently on a social basis, when I enter Lindsay and Dustin’s home, the children often run up to greet me, the researcher, and enquire as to whether my son has come to play with them. If Kieran E. is with me, he and Dustin scamper off to Dustin’s room to play. Lindsay usually opts to stick with me and asks me questions such as “Why did you bring your laptop?” and “Why do you want to read with me?” She will search her bookshelves for her current favorite books to share.

Literacy is prevalent in this house with a writing corner, a dry-erase easel, and a bookshelf full of children’s books all situated in the main living areas of the house. At one time, there were labels taped to the door, refrigerator, table, and such; put there at Lindsay’s request. On top of the refrigerator, there is a calendar with pictures of ASL signs along with English print. With over 350 children’s books scattered throughout the house, there is no shortage of interesting things to read. In the living room, an iMac sits in a corner with more paper, letters, and artwork completed by the children.

The names Dustin and Lindsay in bold capital lettering on separate bedroom doors informs the visitor where each child sleeps. In Dustin’s pale yellow room, I usually
find the boys doing excellent tornado imitations, and cars and toys are strewn about.

Photos of Dustin when he was a baby and of his family are on the walls. Posters containing the ABCs along with the manual alphabet and with the handshapes 1-10 are placed above Dustin’s bed.

Lindsay’s play kitchen has found its way into Dustin’s room. Beanbags for reading are on the floor along with a throw-rug containing roads and buildings used for playing with cars. A train set hides under the bed and bookshelves contain Dustin’s favorite books. An artist’s rendering of the handshapes D-U-S-T-I-N in red, white and blue is hung on the wall.

Down the hallway, Lindsay excitedly points out major features of her purple room (she informs me that she has been lobbying to paint it red). There are toys, more books, dolls, clothes, and school-related materials carefully organized and in their own places. On the wall, purple handshapes L-I-N-D-S-A-Y has been put up on the wall by the same artist. A piece of paper containing the names of each immediate family member along with their birthdates has been put up on the wall next to her bed. Knickknacks such as artificial flowers, small stuffed figures and framed photographs of the family also adorn her walls and shelves.
Figure 3. Lindsay’s McDonald's sign

Outside her bedroom door is a sign that Lindsay (5-9) has created with “McDonalds” on top. She tells me that the sign informs (or rather, warns) people that no real food are allowed in the room and only fake food is allowed. When I ask her why, she looks at me as if it were obvious: “I prefer a clean room.”

Kieran V.

Figure 4. Kieran V. at 12 months old. (Photo courtesy of Family 2)

As narrated by parents of Kieran V. via e-mail: Kieran V. is affectionate, active, outgoing, and loves to laugh. At the same time, he can be stubborn and a little bit of a daredevil. He is a delight and fun to have around, someone who never ceases to amaze us with his development. Kieran is an active boy who loves to learn about new things and share information with everybody. He cares about other people's feelings and he is pretty good at
sharing his snacks with others. He gets along with other kids very well and is very sensitive towards their needs and moods. He thinks highly of other kids and sees their strengths.

When it comes to literacy, he always takes advantage of opportunities to read books (for example, in the car, in the bathroom, before bedtime, or during “down” time). Lately, he prefers signing aloud with us watching him instead of him watching us. He also likes to add some imaginative details to a book. He has recently started writing and enjoys taking turns when writing with us. For example, we will write “K” then he will add “I” and so forth. It is fun watching him.

When I visit, Kieran V. also sees me as a parent who he sees on a regular basis socially and asks me, the researcher, where my boys are. If my boys are with me, they promptly and lovingly create the world of Lightning McQueen, Mater, Doc and Sally from one of the latest Disney Feature, “Cars.” His family moved into their very first home that was recently built and completed the previous summer. The newness of the house is evident throughout as the family continues to get settled in.

However, with toys, cars, over 250 children’s books and stacks of children’s movies in plain view, there is no mistaking that a child lives here. As an only child, Kieran V. has had full run of the house with his own bedroom, a playroom, and a dog in tow. In a few months, he will need to sacrifice his playroom and help take care of a new baby brother or sister.

Every day after school, you will find Kieran V. working on one of his puzzles. He has graduated from 24-piece puzzles and now enjoys struggling with 60 pieces. In the living room, he has a box full of toys that he goes through daily before deciding what he wants to play with. A marble maze in the playroom is a favorite toy of his. A calendar has

\[\text{\footnotesize Signing aloud and storysigning are both used in this dissertation to represent the ‘reading aloud’ of books through ASL.}\]
been put up at Kieran V.’s eye level in the kitchen flipped to June 2008 with many of the
days marked off (it is now February). His mother laughs, “Kieran (V.) really likes
marking off the days even though we have tried to explain to him that he needs to wait
until each day is done. We guess that like the rest of us, he can’t wait until its summer.”

Kieran E.

Figure 5. Kieran E. at 5 months old

As narrated by the father of Kieran E. via e-mail: Kieran E. definitely
enjoys life. He is a people person who prefers to be in close proximity to
others instead of sitting in a room playing by himself. Even on the day he
was born, it was clear he knew what he wanted. Along with his headstrong
personality comes a desire to learn and to understand. Perpetually curious,
he watches adult conversations closely and asks what seems like
thousands of questions daily.

With a vivid imagination, Kieran E. enjoys watching storytellers,
reading books, and telling his own stories. Every night, he comes out of
his bed after story time and tells us of a new fear he has (There’s a bug in
the closet! It will bite me!) He uses this as an effective excuse to ask
permission to read more books until he is ready to fall asleep.

Our son does not like to try new things without being sure he can
do it well. At first, he did not want to fingerspell his name and then to our
amazement, he suddenly did a perfect job. During the New Year’s, I saw
him eyeing a “HAPPY NEW YEAR” banner and secretly fingerspelling
all the letters. His teacher once caught him writing the letter “K” and then
covering up his work before anyone saw him. As he becomes more
confident, I am sure he will become a wonderful writer and I hope he will
always enjoy reading.
At home, Kieran E. can usually be found playing with his younger brother in one of their bedrooms or their playroom. A total of over 300 children’s books can be found in different rooms of the house, often mixed with books for the adults. In our largely off-limits office, Kieran E., has been known to take our books off our bookshelves, thumb through them and much to my chagrin, sift throughout the piles of articles and journals that have been strewn about while writing this dissertation. He tells me, “I need to study too!”

Largely due to hoarding, Kieran E’s room houses most of the children’s books and his name is displayed in wooden block letters on the wall above his bed. A drawing with handshapes incorporated into the spots of a giraffe is on the opposite wall. A train table sits in the middle of the room covered by toy cars and disjointed train tracks. In the playroom, Kieran E. usually cooks dinner for the family using his kitchen set and toys are placed in a disorganized manner within plastic bins.

With the exception of the Magna Doodle set, crayons and markers are placed high on shelves available upon request only (largely due to our youngest child’s penchant for decorating sofas and walls). When he finds someone willing to help him, Kieran E. has access to the family computer where he enjoys viewing different websites designed for preschoolers.

Discussion: The children and their homes

Parental pride and support for their own children and how they approach reading and writing are in the parents’ descriptions of each child. Through observations, interviews and parent descriptions, it was clear that each child has his/her own
personality, preferences, and set of skills and abilities. As anticipated, the homes in this study proved to be mostly homogenous. All of the homes had a large number of children’s books accessible in different places (the car, living areas, the kitchen, and so forth). Each of the homes had writing materials available for their children. There were also dedicated spaces for playing within the children’s own bedrooms. All of the children were encouraged to read at home on a daily basis, either independently or with their parents. Each child also had opportunities and materials available to create written work. Some of the children had access to computers that and could play literacy games found on the Internet.

The primary language used at all three homes was ASL. Parents conversed, teased, discussed and yelled at their children through this language. The children and siblings also played with each other, fought, and chatted with each other through ASL. Minute by minute, the amount of time using ASL far exceeded the amount of time the children were exposed to English. Each family varied in estimates from about thirty minutes to an hour spent on reading and writing at home during the weekdays. Both Family 1 and Family 2 mentioned that the kids were in school all day and they felt some down time was needed and they wanted their children to have a break. This mirrors the perspective of my own family (Family 3). During the weekends, this amount of time increased slightly, often to include drawing and writing time.

Studies have consistently found that literacy at home correlates with later reading success (Paratore, Melzi, Krol-Sinclair, 2003). However, it is important to note that families incorporate literacy in different ways and that there is no single home literacy
activity that has been proven to be the most successful (Yaden & Paratore, 2003).
Perhaps most importantly, because the children have full communication access at home, they also have access to the funds of knowledge present in their own households. Funds of knowledge is a term used to describe the knowledge, life experiences, and skills that each household has accumulated and is potentially available to the children who live there (González, Moll, & Amanti, 2005). Through ASL, the children in the study gather knowledge about the world through the lenses of their families, develop skills and gain experiences that their own households have to offer.

The School and the Classrooms

Figure 6. The preschool classroom

In this subsection, I focus primarily on the preschool and kindergarten classrooms. These classrooms were where the children spent most of their schooling during this study. The information gathered to describe the school setting was collected from the interviews of all teachers as well as my own documented observations.
Each of the children goes to the same state-funded school for the Deaf where their parents work as teachers, specialists, counselors and administrators. The school opens its doors to 18 months-2 year old toddlers who can remain enrolled until they graduate from high school. The school adheres to a bilingual philosophy and participates in an ongoing national bilingual pedagogy training program for teachers. The early childhood department operates under a different division than the grades 3-12 program with its own administrators and staff. Within this department, the principal and four out of five teachers are Deaf. Each teacher receives ongoing training on the Reggio Emilia approach to teaching and learning (Edwards, C., et al, 1998).

During the interviews, all the teachers expressed their support for and dedication to this approach. Reggio Emilia is a child-centric pedagogy initiated in Italy that includes the following basic principles: Children are allowed some control over what they learn and to lead the direction of their own learning; Children must be able to learn through sensory experiences and be allowed to develop relationships with other children; and
Children are encouraged to explore their worlds and develop an intellectual curiosity (Edwards, Gandini & Forman, 1998).

Reggio classrooms are organized to support a highly collaborative problem-solving approach to learning. Young children are encouraged to explore their environment and express themselves through the various types of communication available to them, whether they are words/signs, movement, dramatic play, painting, constructing, sculpture, shadow play, collage, and drawing.

The informants’ preschool and kindergarten classrooms were designed specifically with the Reggio Emilia approach in consideration. There are a number of centers including areas for writing, reading, playing and dressing up. This is in addition to the centers that the teachers set up focusing on different themes that the children have decided to explore. To inform parents, the community and perhaps to remind themselves, the teachers have put up signs explaining the rationale for each center.

In part due to the principles of Reggio Emilia, and in part due to how Deaf classrooms are frequently set up (in a circular fashion so that children may see each other when signing), the classrooms appear to encourage peer interaction throughout the day.
As part of the school’s vision, technology is incorporated in all classrooms. This also provides teachers with opportunities to present print using the original source clearly visible to children. Each classroom has a document reader (technology that projects materials including books as large color images), an InterWrite board (an interactive white board that connects to the computer and document reader), and projector (see Figure 9). Additionally, all classrooms are equipped with digital cameras and computers that are frequently used for documentation and student activities.
ASL is the primary language of communication in the preschool and kindergarten classrooms. In the kindergarten classroom and especially during writing time, Lindsay, the child informant, also uses written English as a medium for communication. In the preschool classroom, the three boys in the study use ASL to discuss storybooks and/or English vocabulary but have yet to be observed using English directly to converse with others. During recess time, teachers and aides are always on hand, not only to supervise but to interact and assist with problem solving and to read books with students if they so choose. In the mornings, books are also made available in the lobby for children to read before the teachers pick their classes up for the day.

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:15</td>
<td>Yoga-Gymnastics</td>
</tr>
<tr>
<td>8:45</td>
<td>Circle Time</td>
</tr>
<tr>
<td>9:00</td>
<td>Exploration</td>
</tr>
<tr>
<td>10:00</td>
<td>Snack</td>
</tr>
<tr>
<td>10:20</td>
<td>Story Time</td>
</tr>
<tr>
<td>10:50</td>
<td>Recess</td>
</tr>
<tr>
<td>11:15</td>
<td>Lunch</td>
</tr>
<tr>
<td>12:00</td>
<td>Recess</td>
</tr>
<tr>
<td>12:30</td>
<td>Community Storysigning</td>
</tr>
<tr>
<td>1:00</td>
<td>Quiet Time (Students can read)</td>
</tr>
<tr>
<td>1:30</td>
<td>Literacy</td>
</tr>
<tr>
<td>2:15</td>
<td>Wrap-up</td>
</tr>
<tr>
<td>2:30</td>
<td>Go to after-care</td>
</tr>
</tbody>
</table>

*Figure 10. The preschool classroom schedule*
The Kindergarten Classroom Schedule

8:15: Sign in
8:20: Project time
9:15: Morning meeting
9:45: Recess
10:15: Literacy
11:15 Lunch
12:00 Recess
12:30 Community storysigning
1:00 Quiet Activities (Reading or Writing)
1:20 Physical Education
2:00 Computer (M/W); ASL (T/Th)
2:30 Math
3:05 Home

Figure 11. The kindergarten classroom schedule

Discussion: The school and the classrooms

In her discussion of developmentally appropriate practices, New (2002) provides a highly relevant analysis, “The image of an early childhood education presented in this (New’s) chapter is consistent with the Italian belief of schooling as a system of relations—a system in which multiple and minority voices count, where teachers use their observations and parents’ understandings of young children as a basis from which to consider individual and societal educational goals” (p. 258). Through the Reggio Emilia approach, the teachers are encouraged to allow children to take the lead and to interact with one another throughout the day. The curriculum used in the Reggio Emilia schools is not created in advance. Instead teachers must begin the year with general goals and work with students to establish the direction of their learning. Reggio Emilia principles are shaped by ideas of well known educators including Maria Montessori, Jean Piaget, Lev Vygotsky and Howard Gardner (Gandini, 1997). However, the teachers also adhered to a basic structure set-up daily so that the children knew what to expect.
During observations, and as shown in the classroom schedules, at least 90% of class time (not counting rest time) is dedicated to language development through social interaction with peers and adults, during group discussions and problem solving. Not explicit in the schedules but still prevalent during observations is the teachers’ focus on the development of their students’ critical thinking skills by asking questions and providing a forum for discussions that require higher level thinking skills.

Dyson (1993) discusses the concept of “unofficial classroom worlds” organized by children and constructed through talking with each other. In comparison to the “official classroom worlds” set up by teachers, children carry on social work in their unofficial worlds while participating in activities set up by the teachers. The teachers in the study encouraged the development of unofficial worlds by allowing them to take control of their learning, and to interact with each other socially during various activities.

During my conversations with the teachers and classroom observations, it became clear that all of the teachers in this study were heavily engaged in the practice of kidwatching and documenting each child’s development demonstrated in the normal course of the day by observing them (Goodman and Owocki, 2002). Teachers frequently observed conversations between the children as they were engaged in literacy activities and shared this information with me.

In part because of the pre-service and in-service training in ASL-English bilingual education, and in part because of their own experiences and values, ASL is not only the language of communication and instruction, but a language that is taught. An ASL teacher entered the classroom at regular intervals during the week to work on the
development of ASL skills. In this way, the classroom provides support for the students’ home and natural language. The teachers in the study valued the students’ abilities, language and social dynamics as evidenced by the way the teachers set up their classrooms, kidwatch, support language development, and encourage social learning.

The Community

In this subsection, I discuss the local community to provide a sense of the greater sociocultural context of the children’s lives. I focus on both the general community as well as the local Deaf community. The children in the study reside in a predominantly middle-class area close to the school within a few miles from each other. Largely because the city is situated in the southwestern part of the country, the community has numerous Spanish and English bilinguals as well as monolingual speakers of either language. In addition to environmental print in English, printed Spanish is highly visible in restaurants, street signs, and shops as well as some local news publications. Consumer instructions and warnings frequently incorporate both languages. In spite of the heightened levels of bilingualism within this community, and in keeping with the general status quo of this country, English remains the language of power, the language of the government and of legal transactions. As with the majority of public schools across the country, none of the public schools within this area intentionally promotes maintenance of Spanish as a first language.

A strong sense of community and local pride is clear in the numerous community celebrations, festivals and fiestas, many of which are unique to the town. There is a perceptible divide between the upper class who have second homes in the area and the
lower class who frequently live in manufactured homes and/or trailer parks. Nearly every week, there is a discussion in the local paper lamenting the high cost of living in the city, brought on by the upper class and the tourist elite. The city is peppered with an abundance of local private schools with predominantly white, upper class children and public schools with a more diverse population.

The arts are highly valued in this city, with artwork displayed in public areas, galleries and restaurants. A new public library visited by the children in the study was recently built with a large children’s area with books, videos, audio books, reading areas, and a puppet/storytelling area. At the public library, storytelling time is hosted on a regular basis, open to the public. Following the national trend, large chain bookstores with coffee shops are popular. Smaller new and used bookstores pepper the back roads and are also frequented by many.

There are a large number of Deaf members of the community in proportion to the size of the community, almost all of whom work at the school for the Deaf. Many have moved to the region in recent years and relatively few are local Deaf residents who were raised in this community. Because of the small population of the city and the large number of Deaf individuals, it is not uncommon to bump into Deaf and hearing people who can sign, in restaurants, shops and parks. School-related events such as basketball tournaments and plays are well attended by members of both the Deaf and hearing communities, many of whom work at the school and/or are parents of students themselves. The local adult sports league often has a Deaf team that include a few
parents. The games are frequented by fans who are both Deaf and hearing including the children in the study.

Discussion: The community

Because the city is small in both population and geographical terms, and the Deaf community is proportionally large, the children in the study are immersed in an environment that is familiar and frequently accessible to them. Social events provide opportunities for the children to interact with each other, continue their language development and expand upon their world knowledge. In essence, the Deaf community serves as a neighborhood for Deaf children who typically do not have access to children and adults through ASL (simply because members of the general community often do not know ASL) in their own physical neighborhoods.

It is not known exactly how much the community at large impacts the literacy development of Deaf children. Certainly, the type of impact is not the same as hearing minority bilingual children even though their home language is often different than the language of their community. Hearing children are also exposed to face-to-face communication in their 2nd language environment and this includes television and music. However, Deaf children are as exposed to environmental print in their surroundings as hearing children are. The Deaf children in the study certainly observe their parents interact with the hearing community through reading and writing. Although studies are needed to analyze the extent of impact that environmental print has on Deaf children, I believe that there is some degree of impact. In Chapter 6, I provide examples demonstrating that Deaf children do respond to print presented by their environment.
In this section, I discuss the impact of the belief systems as well as the experiences of the adults directly involved in promoting the children’s literacy development. This information is important to this study because the beliefs of parents and teachers undoubtedly have a high level of impact on what they do with their children/students. Studies presented in The Family Literacy Handbook leaves no doubt about the significant role that family literacy plays on children’s literacy development across cultures (Wasik, 2004). There have also been studies that demonstrate the impact of teacher’s conceptualization of early pedagogical practices on early literacy development (e.g., Dickinson & Sprague, 2004).

This information was gathered through the interviews as well as more informal conversations that I had with the adult participants. The interview data were collected and organized based on salient themes pertinent to answering the main research question. After organizing the information, I developed theme statements represented in bold to provide a general category for each theme. Because not all themes were relevant to both parents and teachers, each theme is labeled Parents and/or Teacher to clearly indicate to which group the theme is relevant.

After each theme statement, I provide a brief overview of the theme itself and then provide narratives as supporting evidence. These narratives are in the parents and teachers’ own words and were transcribed and translated from ASL to written English. To maintain the integrity of this study, I also performed member checks by sharing my interpretation of the narratives with the parents and teacher to ensure accuracy. Because
the parents were highly literate bilinguals themselves, they were able to check to make sure that my translations were expressed in the spirit they had intended. Additionally, I also answered the interview questions prior to interviewing others and analyzed the responses nearly a year later along with the other data that I gathered and analyzed. For purposes of clarity, my own responses are in italics.

Parents and teachers: I don’t really remember how I learned to read. When I posed the following question, “How did you learn to read?” only one of the teachers felt that she had a good idea of how she learned to read and remembered activities that helped her learn to read. The same teacher expressed the least amount of confidence in her reading abilities and felt that she became a reader later in life. The rest of the adult participants in this study took a bit of time to contemplate this question and their reply was something along the lines of, “I don’t know”:

I don’t really remember learning to read and write. I remember going to school but I’m not sure exactly how I learned to read and write. I guess learning to read and write never actually felt like learning. (Parent: Family 2)

How did I learn to read? That’s a hard one. Uhmm… I remember reading Sesame Street letters on television, you know… A B C D E and all that. They had Linda Bove so I could understand some stuff. I remember learning letters through this but that’s pretty much it. (Parent: Family 2)

I’m not sure how I learned to read. I remember some books that I had to use in school. Maybe I learned from that, I’m not sure. (Parent: Family 1)

I can’t remember learning to read and write. My parents taught me how to read the newspaper, especially the sports section. I think I just learned to read at school as my parents didn’t read much with me at home, I don’t think. (Parent: Family 3)

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9 Linda Bove was a Deaf actress who frequently appeared on Sesame Street using ASL.
How did I learn to read? That’s a really good question. I actually do not remember learning to read. (Preschool teacher).

*I do not remember learning to read. I assume my parents read with me as they’re readers themselves. My earliest memories are of reading independently. I remember getting very excited when my mother announced that we were going to the library to borrow books to read.*

Although most of the adult participants in the study were Deaf bilinguals who themselves experienced early exposure to ASL at birth, they still had to learn “an entirely new system of communication which requires very different skills to learning the conversational form of a language” (Knight and Swanwick, 2002, p.90). I have yet to encounter literature in the field of Deaf education that provides an explicit explanation on why skilled Deaf readers may not remember learning how to read English text. I propose a possible explanation here: Deaf children exposed to print mediated by ASL and the text itself at early ages seem to acquire print naturally. This is supported by studies presented in Chapter 3 that more skilled Deaf readers seem to have found alternate routes to literacy (e.g., Kuntze, 1998).

Additionally, there is literature regarding hearing bilinguals suggesting that children who develop a second language earlier within their home environments have a number of advantages over those who learn a second language later (e.g., Baker, 1995). Clearly, part of the reason can be attributed to the fact that these individuals learned to read very early in life. Evidenced by photographs of the children in the study engaged in literacy activities at very young ages (Figures 1, 2, 4, & 5), their parents’ experiences of learning to read very early in life has been passed on.
Parents and teachers: Reading should be fun. Growing up, I had many

favorite books and genres. Most of the parents and teachers had fond memories of reading for fun when growing up. Some also fondly volunteered information about their favorite children’s books and genres. Each of them expressed a desire for their children to also like reading. Interestingly, the more negative reading experiences were frequently associated with reading in school:

Its very important for people to enjoy reading, without pressure. Reading should be fun. (Parent: Family 1)

My favorite books were The Giving Tree, The Red Balloon, Corduroy, and I liked comics. I remember subscribing to The National Geographic and reading the Highlights magazine in the dentist’s office. Reading was fun until teachers forced me to read books that I did not like. However, I still enjoyed reading but only books that I could choose by myself. I always tried to keep journals but that never lasted. I liked to write on my own though. (Parent: Family 2)

When I was little, I liked to read sports news, magazines, biographies and all that. I think I like pretty much anything except horror stories (laughs). I remember reading school novels and that was ok-ok. I loved comics and watching cartoons with captions. I like to read for fun. I hated book reports growing up. What was the point of writing book reports? I still don’t see the point (Parent: Family 2)

I loved to read at home. My parents did not buy a television until I was seven years old. I think that made a difference for me. In class, I remember doing workbooks and hating it. I would just look for answers and then answer questions without reading the entire passage. There was no thinking required. I’m just glad that I already enjoyed reading by that time. I still remember my favorite authors: Maurice Sendak and Dr. Seuss. When I got older, I loved A Wrinkle in Time and the Nancy Drew and Babysitter’s Club series. (Preschool teacher)

I loved sports magazines, the sports section of the newspaper. I also remember really liking nonfiction stories such as reading about the Bermuda Triangle and sports biographies. (Parent: Family 3)
I loved to read growing up. I enjoyed what most young girls liked to read at that time. My parents never said no when I wanted to order books from Scholastic catalogs distributed at school. (Kindergarten teacher)

*I have always loved reading. Even now, I spend way too much on books. People ask me, “what’s wrong with the library?” For me, I really like reading a book over and over again. I think a part of me is afraid that if I borrow a book from a library, I’ll never have the chance to read it again.*

When asked why they had their children read every day, none of the parents mentioned the acquisition of English as the primary reason for having their children read every day. All of them said something along the lines of, “So they will learn to love to read” or “So that they will become good at reading.” The parents’ desire to pass on a love for reading was evident in the amount of children’s books in each home as well as the daily encouragement to read before bed.

As discussed in Chapter 3, although there have been attempts to put ASL in written form, there is not a body of literature available and the written forms have yet to be accepted in the general community. This is different for spoken language bilinguals for whom reading can be accessible either in a child’s first or second language. Therefore, for many, reading in English is the only option and in this sense, reading equates English.

School reading often did not correspond to fun reading. A number of the parents and teachers did not enjoy reading for school. My own husband, for example, could only mention one book, *Catcher in the Rye*, that he liked throughout his years of school. This also appears to reflect the parents’ desire to have their children enjoy reading at home which translates to continued encouragement for the children to read for fun.
Parents: **Literacy is defined by ability.** As one of the leading interview questions, I asked parents and teachers what their definitions of literacy were and when they would consider their children/students “literate.” Most of the parents defined literacy primarily as the ability to read and write:

I think if a person can read at the third grade level, the person is literate. It’s important for a person to be able to communicate by reading and writing. (Parent: Family 1)

Literacy is the ability to read and write. My children are literate if they can read and write. (Parent: Family 1)

I guess literacy means a person being able to read. That’s the bottom line. If a person can explain what the book says. Older people can read if they can interpret non-literal information and read between the lines. I think it’s also important if a person can feel/empathize with stories. Maybe he is literate when he can read something new on his own with familiar words or figure out word meaning from context. (Parent: Family 2)

I guess to be literate basically means that my child should be able to read and write. Literacy means…I guess it means a person who can read and can analyze text and have deeper thinking skills. I think I will consider my child literate when he becomes motivated with reading and able to discuss what he learned. (Parent: Family 2)

I think a person is fully literate when he or she can read and write without struggling. Its more important for a person to read than write, I think. I’m not sure. (Parent: Family 3)

**Teachers: To be literate means many things.** In response to my question about the definition of literacy, the teachers frequently had a broader definition of literacy:

Literacy means having opportunities for reading and writing, talking about books, producing written work and reading each other’s work. A child is literate when s/he enjoys reading and reads to learn. A child is also literate when s/he shows interest in literature and recognizes environmental print. (Kindergarten teacher)

A child is literate when s/he feels free to read and write whatever s/he wants. (Toddler teacher)
Literacy means to be able to read and write anything, including environmental print and invented spelling. (Pre-kindergarten teacher)

Literacy basically means to read and write but that’s not all. It means that you can process whatever is happening in the world and you can be a complete member of the community (Preschool teacher)

The teachers all worked with younger children and their definition of literacy seemed to mirror their experiences. They used language to include concepts such as environmental print, world knowledge, and reading to learn. At school, the teachers incorporated activities and lessons designed to elicit world knowledge, enhance awareness of environmental print, provided opportunities for book-talk and to conventional and unconventional print.

Although the parents in the study incorporated many of the same activities at home, their definitions included a more fundamental concept: the ability to read and write. Most parents defined literacy primarily as the ability to read and write. The parent (Family 1) whose definition of literacy included communication and a third grade level benchmark was also the only parent who teaches reading and writing in the elementary grades. Except for the parent in Family 1, none of the interviewees had a specific baseline or benchmark to determine whether or not a child is literate. However, when asked if they thought their children or students were currently literate, all of the participants responded affirmatively to varying degrees. This suggests that even though the definitions of literacy varied and included ability, parents still viewed their children as readers and writers to some extent.

Parents: On reading as a Deaf person. I asked the adult participants whether they thought reading was different for their Deaf children as compared to hearing
children. This is the only theme that I am including that is not based on the parents’
answers but based on the question that I asked due to the information that arose from the
highly varied responses. I decided to include this theme because the variation in
responses is significant to this study. Most of the parents had different ideas about the
type and level of impact being Deaf has on literacy development:

One teacher once told me that I was supposed to visualize sentences in
English. I didn’t understand how to do that and it seemed strange to me to
imagine what the English sentences look like. Another teacher told me that
she hears the words in her mind and she thinks it helps. I think I simply
visualize the stories directly from print. If people ask me what a story talks
about, I simply remember the story itself, not the exact English sentence. I
certainly do not “see” or “hear” the English. (Parent: Family 2)

I do think my son’s being Deaf impacts his literacy development. I think
hearing children have an advantage because they hear English on
television, on the radio or through listening to music as well as having
conversations with family. They already have a foundation in English and
we have to give them that foundation through reading. If we are not
consistent with reading, my child will not read well (Parent: Family 3)

I think there is some level of impact being Deaf has on my child’s literacy
development simply because he is not exposed to English vocabulary in
everyday conversations. However, based on my own literacy experiences,
I believe the impact becomes less of a factor when the Deaf children grow
up and learn from text.

Perhaps because all parents work in the Deaf education field, they acknowledged
several times during the interviews that many Deaf children struggle with literacy.
However, parents attributed this struggle to a variety of non-Deaf related factors (e.g.,
poverty). Several parents including myself did not disconnect being Deaf from its
potential impact on reading achievement. However, this was not a theme found across the
board. One parent of Family 1 felt that there was no impact of Deafness on their own
children’s reading abilities worth mentioning. The other parents in Family 1 and Family 2 both shrugged and said that they were not sure but did not seem to think so.

This result was surprising: Without realizing it, I had made an assumption prior to this study that Deaf parents of Deaf children placed high levels of emphasis on reading and writing because of a perceived urgent need to present English visually to their children at young ages. However, all of the parents including myself, seem satisfied that although the reading abilities of their children may or may not be impacted by their Deafness, their children will somehow become literate.

**Parents: I believe it is important to do many things to enable my child to become literate.** During observations and as evidenced by how the homes are set up, it became clear that all parents feel it is important to encourage literacy and incorporate literacy in their homes. In the interviews, I asked them what they thought was important for them to provide. None came up with a single answer and every parent came up with numerous ways to promote their children’s reading and writing abilities:

We do a lot of things; provide books and writing materials for our children. They also have different toys and puzzles that incorporate print and fingerspelling (the manual alphabet). At home, our daughter also has some workbooks for Math that she enjoys and we believe it impacts her literacy development. We also interpret movies or TV shows for the children and they can see the captions and our interpretation at the same time. We also read with our children whenever they want and encourage them to read and write for fun. We sign aloud stories for our children and (the father) usually focuses on the practical part, the text while (the mother) tends to focus on the story concept, playacting, and concept building. (Parents: Family 1)

We think it’s important that our child reads every day anytime he wants, especially at night before bed. Actually, we have to limit the number of books at night so that he will go to sleep. It is important that books are accessible all the time as opposed to being on a top shelf somewhere. We
think it’s also important to let our child read on his own to develop his own interests as well as reading with him to help him build concepts and understanding. We think some fingerspelling is important in developing vocabulary and we try to introduce a new concept or idea every time we read with him. As for writing, we try to support him in writing and give him opportunities to encourage him to write. Obviously its also important for him to attend school to learn more. (Parents: Family 2)

The singular most consistent activity in our home is reading with our children every day before bedtime. Especially during weekends, we also read with them throughout the day. We also naturally incorporate a lot of fingerspelling at home and try to point out different pieces of information in English. For example, if we read directions for assembling a product, we will explain to our children what we are doing. We will point out labels on cereal boxes, and even discuss nutrition information with our son, showing him the print at the same time. We try to make sure we take the time to explain things such as why cars need gas to operate. Additionally, we encourage creativity and story sense through development of ASL stories. (Parents: Family 3)

When I had a dialogue with the father of Family 1 about the amount of literacy activities he does with his children, he asked me, “Don’t hearing parents do this also?” After thinking about this a bit, I have come to realize that this was a valid question. It remains unclear whether the Deaf parents in the study do more (or less) than hearing parents. To my knowledge there have been no studies that focuses on a direct comparison between what hearing parents do with their hearing children to what Deaf parents do with their Deaf children

Landry and Smith (2006) provide some insight into this topic when they discuss various studies related to the influence of parenting on children’s emerging literacy skills. “In a study that examined aspects of the home literacy environment for understanding preschool children's language development, characteristics that went into a literacy construct included frequency of shared book reading, earliest age of picture book reading,
number of picture books in the home, children’s requests for book reading and their play with books, as well as shared trips to the library, and parents own personal reading habits (Payne, Whitehurst, & Angell, 1994)” (2006, p. 138). Landry and Smith (2006) also discuss studies that demonstrate the significance of parental influence on language development.

However, the influence of parents on a child’s literacy is not limited to language development itself but to parental expectations and scaffolding behavior in which parents increase and expands upon their children’s knowledge. Although the studies discussed by Landry and Smith (2006) focuses on hearing parents with hearing children, much of the behaviors discussed parallels to the behaviors found in the families within this dissertation study. Within this context, it does appear that the Deaf parents in the study do things similarly to what hearing parents of similar backgrounds do with their children.

All of the parents in the study frequently and regularly engaged in the act of story signing with their children. During the act of storysigning, they did not limit themselves to the text but used text as a jumping off point in which to add more information. This is supported by Schleper’s (1997) study of Deaf adults reading to Deaf children. He found fifteen strategies, also called principles, that Deaf adults use when signing stories aloud. The observed storysigning behavior of the parents involved in this study fully supported Schleper’s research findings (see Schleper, 1997 for additional information). Among the more relevant principles to this part of the dissertation study are: Connecting concepts in the story to the real world, elaborating on the text, and making what is implied explicit.
In part, the merits of the aforementioned storysigning behaviors found in Deaf parents reading to their Deaf children are also evident in the literature regarding hearing children. Lehr, Osborn & Hiebert (2008) write

...reading aloud by itself is not sufficient to build vocabulary or increase comprehension. To understand a story, students must relate their existing knowledge to the words and ideas in the story. This can be a challenging task, especially for young children with limited oral vocabularies (Whitehurst, et al. 1994). Some researchers contend that the real value of reading aloud activities for vocabulary growth lies not in the reading alone, but in the teacher-student talk that accompanies the reading. The value of talk around book reading lies in the way it can promote students’ familiarity with new, or rare, words (Dickinson & Smith, 1994). Beck and McKeown (2001) emphasize that it is through the talk surrounding read-aloud activities that student gain experience with decontextualized book language – that is, the language that represent ideas and contexts (p. 8).

Communication and language is critical in allowing a child to develop basic concepts which is later transferred onto words in print. In her chapter entitled “Joint-Caregiver- Child storybook reading: A route to literacy development,” Bus (2002) writes “According to the social-construction hypothesis, book reading is a socially created, interactive activity (Sulzby & Teale, 1991)” (p. 179). Books are frequently enjoyed by those who receive intensive help and support from adults. In giving “intensive help,” parents utilize a wide variety of strategies to engage young children in book reading. Bus writes, “From experimental research, it can be derived that dialogic parent-child book reading stimulates children’s vocabulary” (2002, p. 183). When parents and children engage in reading activities, they do not strictly adhere to the words presented in the text. For younger children, much discussion time is given to the pictures within the book. Bus concludes, “A key factor in high-quality storybook reading may be the way in which
adults mediate the reading experience in response to children’s interests, personal experiences, conceptions and knowledge” (Bus, 2002, p. 188). In essence, the parents in the study also demonstrated their belief that the merits of storysigning is not limited to the book’s English text alone and that the conveyance of information and dialogic discussion is also important.

Through a variety of activities mediated by parents, (e.g., interpreting the TV, storysigning, and writing with parents) the children access a wide variety of symbol systems. For example, when parents interpret TV shows for their children using captions, there are numerous symbol systems available for the children: The captions, the show itself, and the interpretations. This creates high levels of comprehensible input in which the children access print. This also creates fun and enjoyable activities within the children’s sociocultural context for them to acquire reading and writing skills.

**Parents: My parents wanted me to read well regardless of whether or not they were readers themselves.** Invariably, all of the Deaf teachers and parents remembered being strongly encouraged to read and write well. The parents, in particular, wanted the same thing for their children:

- My (Deaf) parents always struggled with reading and writing. They did not want me to struggle also. (Parent: Family 1)
- My parents were frustrated and not confident with reading. However, they wanted me to do well in school. (Parent: Family 1)
- My parents mostly read magazines. My father mostly read the sports pages in our local paper and not much else. They have started communicating through email over the recent years. However, they are not confident readers, especially when it comes to more academic stuff. (Parent: Family 3)
My parents were readers. I remember my mother reading westerns, and my father reading what seemed like dull computer manuals for work. I was always around books growing up.

An unexpected demographic appeared during the interview sessions. All of the children’s grandparents were also Deaf. Additionally, out of eight great-grandparents for each family, four of Kieran E’s great-grandparents, three of Kieran V.’s great-grandparents and two of Lindsay and Dustin’s great-grandparents were also Deaf. There were also a couple of Deaf great-great grandparents in the mix. None of the first generation Deaf grandparents in the study completed college. Of those grandparents who were at least 2nd generation Deaf (6 out of 12 grandparents), four completed college.

This information supports the literature that suggest that it is more difficult, although not impossible, to acquire high levels of literacy and academic skills as a first generation Deaf person. During the interviews, the parents discussed their own first generation Deaf parents’ frustration with school in general, and more specifically, with reading and writing. I myself remember my own 1st generation Deaf grandmother wishing that she could read and write better. Both of my maternal grandparents always expressed pride that their four children attended college and did better than themselves.

This theme was prevalent in the interviews. All grandparents wanted the parents to do better than they, themselves did. Even if they were struggling readers themselves, the grandparents encouraged the parents to read and write, and expected the best from the schools and their children. Interestingly, even though all of the parents in this study had acquired a Masters’ degree, some of the second-generation Deaf parents still expressed some level of uncertainty about their own writing skills, saying their skills could still be
better. The third generation Deaf parents expressed a higher level of confidence in our English skills. This may be attributed to having parents who serve as more fluent ASL-English bilingual models.

Teachers: I believe in fun and meaningful strategies for teaching reading in authentic ways throughout the day. What people do is heavily influenced by their own lives, experiences and beliefs. When I interviewed the teachers, we first focused on their experiences and beliefs and later, discussed what they did in the classrooms. Upon analysis, I was struck by how much their experiences influenced their beliefs, which in turn influenced what they did in their classrooms.

My dad was Deaf and my mother was hearing. They both moved to New York from Puerto Rico and I was exposed to ASL, Spanish and English but I did not experience much literacy at home at a young age. I lived with my teacher for a while and I think that had the most significant impact on my literacy development. My foster family emphasized reading at home as much as possible. It is my dream for all of the children that I teach to have good literacy skills and not to have to struggle like I did. At school, my reading and writing were criticized a lot.

In my classroom, I think it’s really important to be supportive of kids and not be critical, especially with two year olds. For me, it’s really important that my students learn to love reading and this is why I spend a lot of time storysigning using the InterWrite boards. I try to point to English print when I am signing so that the children learn how to make connections and understand that print means something. My students are still developing their first language and I try to make sure we provide a strong language foundation in ASL. (Toddler teacher)

I think it’s very important that all Deaf children learn to read and write so that they can become whatever they want to become. As a hearing person, I think literacy came more easily to me than it does for many Deaf people. It must be harder for Deaf children who do not have communication at home and I think that having a first language in ASL is extremely important. I can not imagine trying to read and write without having a language and understanding the world. Growing up, I had the opportunity to learn about the world, to ask questions and get things explained to me.
All Deaf children need the same opportunity before they become literate and I try to provide this in my classroom. (Pre-kindergarten teacher)

I have Deaf parents and siblings and I remember my mother always signing stories to me and showing me that she highly values books. We often went to the library and I always borrowed the maximum number of books and feel that I learned how to read naturally. My parents were huge proponents of using ASL to teach reading and writing, even before ASL-English bilingual education officially existed.

During Literacy time in my classroom, we focus a lot on storysigning and developing story sense. As part of incorporating English vocabulary naturally, I do several different things every day. For example, during sign-in time, I used to have colors listed (e.g., green, red, blue, orange) connected to the actual markers and the students had to pick which color they wanted. Now, I have taken the markers down and the kids all know which words go with which color marker.

I believe in taking advantage of teachable moments through ASL, even when talking about English. For example, the students were discussing amongst themselves different letters of the alphabet. I took advantage of this opportunity to discuss how I have a capital S in my name while Dustin has a small s. I have recently added journal time and am always looking for opportunities for my students to read and write throughout the day. (Preschool teacher)

I learned to read in many different ways. My Deaf mother loved newspapers and magazines and she bought me books- even when traveling- instead of buying souvenir shirts she’d buy us books. I have memories of sitting on my father’s lap when he was reading the newspaper and asking him what different articles were talking about. I think its very important for children to be able to read and experience literacy in natural settings.

We do a lot of things in the classroom related to literacy. I have writing centers set up and the kids usually like to write or draw on their own. My students make shopping lists, sign-in their names, read by themselves or with adults, etc. We always have storysigning time and we go and visit the librarian who storysigns with the kids. I believe we need to encourage students to play with language naturally throughout the day, in both ASL and English. We have centers in the classroom and focus on different themes. I let the kids take control of the topics and discussions that we have. (Kindergarten teacher)
Discussion: The beliefs and experiences of parents and teachers

Just as the experiences and beliefs of parents influence what they do with their children in their homes, the experiences and beliefs of teachers influence what they do with their students in their classrooms. In this respect, the experiences of Deaf teachers along with the training and perspective of the hearing teacher impacted what they view as important to address in the classroom. It is significant to note that the beliefs of parents and teachers were largely similar, perhaps because for many, their experiences as Deaf individuals along with their training within the Deaf education field were also remarkably similar.

Research shows that when children’s school setting resembles a child’s home setting and the children’s home language and culture are valued, they do better (Goldenberg, 2002). Linguistically and culturally, the children in this study appeared to be in a rare situation when compared to minority bilingual children in this country: Their minority language as well as their Deaf culture were highly valued at school.

In discussing their own classrooms, the teachers presented their classrooms as natural, student-centered, positive, with plenty of opportunities for reading and writing. This was highly reflective of the teachers’ pedagogical training in both ASL-English bilingual education and Reggio Emilia. During the interviews, all of the teachers expressed pride in how their classrooms were set up and in their students. Most also expressed some degree of uncertainty. Comments along the lines of “My classroom is still not perfect,” and “I could probably do more,” were frequent. Each of the teachers consistently demonstrated a desire to do better, to do more, and to gather new ideas.
Perhaps unintentionally, they appeared to view themselves as life-long learners which mirror the Reggio Emilia perspective of encouraging teachers to be researchers committed to reflection about their own teaching and learning (Malaguzzi, 1998).

In this section, I discussed the beliefs and experiences of the parents and teachers involved in this study. Their beliefs and experiences were highly relevant to what they did with their children/students in school and at homes. This included providing the children in this study with plenty of opportunities to read and write, encouragement to read for fun, with a focus on making reading and writing positive. Inherent in the interviews was the expectation that the children would become highly proficient readers and writers. The adults in this study also articulated their use of ASL to promote literacy development. This concept is analyzed further in the next section when I discuss social worlds and literacy development.

**Social Worlds and Literacy Development**

Dyson (1993) observed both official (mediated by adults) and unofficial (mediated by children themselves) social worlds of children and how the children’s reading and writing were developed through Discourse. In all children’s lives, including Deaf children, reading and writing are mediated by adults and peers through Discourse. Perhaps especially because ASL is the face-to-face language of the children in this study, the language cannot be separated from the social Discourse of the children and literacy development also cannot be separated from the children’s social worlds. In this section I provide a discussion along with examples on how the three variables (literacy development, social worlds and ASL) work in concert with each other. Because writing,
reading and social Discourse cannot be separated from each other, I first focus on the role of ASL and fingerspelling in literacy development and then move on to a discussion of the children’s social worlds.

**The Central Role of ASL and Fingerspelling**

Although the role of ASL in the acquisition of reading and writing could be a dissertation study within itself, I cannot ignore the impact of ASL and fingerspelling on the informants’ literacy development. The following example illustrates the development of ASL vocabulary related to time that will eventually lend itself to understanding vocabulary in English print:

**Context:** The students were in their preschool classroom sharing their “feelings” of the day with their teacher and peers. The preschool teacher was focused on developing an understanding of different emotions in ASL. She told me later that the children had decided that being “mad” was funnier than any other emotion and she decided to ask the students to justify their “I am mad” statements. The children were asked to take turns standing up with their teacher to share their feelings with everyone.

Kieran E: I am mad!  
Teacher: Why?  
Kieran E.: I am mad because a bug bit me yesterday.  
Teacher: Oh, I see. Poor you! Dustin, your turn, how do you feel today?  
Dustin: I am mad . . .  
Teacher: Why?

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10 I use the English equivalent of ASL signs based on my transcriptions and translations of the Discourse that transpired.
Dustin: I am mad because a bug bit me tomorrow!

All of the students took Dustin seriously and seemed to accept that a bug bit him “tomorrow.” *Tomorrow* and *yesterday* are more similar concepts than *today* as they both refer to a time that does not happen today. Dustin’s thought process appears logical considering the White Queen’s rule in *Alice's Adventures in Wonderland and Through the Looking Glass*: Jam tomorrow and jam yesterday but never ever jam today. Upon analysis, Dustin along with his peers were engaged in a form of semantic mapping by developing their word schemas about time as they connected words with each other and understood how the words relate to one another (Nagy & Scott, 2000).

Cummins (2001) writes that the development of the common underlying proficiency allows for transfer from one language to another. ASL provided a language in which the children could build upon concepts that they could access when acquiring reading and writing skills. Prior to, and during the study, the students remained highly engaged in building their common underlying proficiency. In other words, a critical component of the children’s literacy development rested on their understanding of concepts, of the world.

In this study, ASL did not only serve as an indirect conceptual map that the children utilized to comprehend print. All of the children in this study were observed asking their parents and teachers for the meaning of words by pointing to a word in print. They were given signs or sign phrases as answers. In addition to making direct connections between words and signs, fingerspelling also played a critical role in bridging ASL and English throughout this study.
The Role of Fingerspelling

Figure 12. The ASL, English, fingerspelling and pictorial representations of “leaves,” developed by the toddler teacher for her classroom.

Padden (2006) states that native ASL signers fingerspell approximately 18% of words in their regular Discourse. The informants were living in homes that used ASL as their native language; the children in this study were also exposed naturally to large amounts of fingerspelled words. Frank Smith (1996) writes that it is important to create bridges between text and meaning. Frequently, fingerspelling is seen as a bridge from ASL to the acquisition of English words and to facilitate the transfer of language knowledge onto print. To explore this issue, I carefully observed the role of fingerspelling in the informants’ literacy development.

The role of chaining and sandwiching while reading with adults

In my observations of the informants reading with family members and teachers, a great number of fingerspelled words were used along with signs. This phenomenon is known as sandwiching or chaining in which adults embed a fingerspelled word in between signs or sign the word immediately after fingerspelling (Padden, 2006). As
opposed to normal Discourse, sandwiching or chaining is used to intentionally emphasize the English word during reading activities.

In more than thirty specific documented observations of the preschool and kindergarten classroom during shared reading, storysigning sessions, parents discussing and reading books with their children at home (not including my own) that involved adults, not a single storysigning session occurred without fingerspelling. Part of this is a natural part of codeswitching as when adults read to other adults, there is some level of fingerspelling involved. However, part of this appears to be because the teachers and parents wanted to clearly convey the English word. When some of the informants were younger (ages ranging 2-5 to 2-11), their toddler class did not incorporate as much fingerspelling and out of five documented storysigning sessions, three included the fingerspelling of short English words (e.g., M-A-D). The use of fingerspelling by adults to the children appeared to increase as the children grew older. The kindergarten class utilized the highest amount of fingerspelling within the storysigning and shared reading sessions as well as during classroom discussions mediated by the teacher.

Padden (2006) writes that Deaf children learn to fingerspell twice, the first time before they learn to read, and the second time after having learned to read. There are numerous examples of how the children within this study learned their initial use of fingerspelling, two of which I present here: At 16 months old, Lindsay asked me for ice by using a modified form of the lexicalized fingerspelling with “5-E” as prominent handshapes for the English word, *ice*. Interestingly, all three other children in this study also used similar handshapes at young ages for the word, *ice*. At 15 months old, when
asked what a body part was (I pointed to his bellybutton). He responded with a wiggle of his fingers and then prominently displayed Y using movements that appeared similar to the conventional way of fingerspelling.

The informants in this study also acquired the second skill of fingerspelling as they acquired an understanding of print. They began to see the fingerspelled words as having individual and separate handshapes. For example, each of the three preschool children moved from fingerspelling C-E at the beginning of the study to being able to clearly fingerspell I-C-E by the end of the study.

Each of the informants seemed to move toward acquiring the second skill of fingerspelling as they learned to fingerspell their own names approximately between the ages of two and a half and three and a half years old. A family home video shows Lindsay fingerspelling her full name at age 2-4 with each letter depicted clearly. Another family home video shows Dustin fingerspelling his name at 2-10. Kieran E. became fluent in fingerspelling his name at 3-4 and by the end of this study; Kieran V. (3-3) had almost accomplished this task with a few persistent errors. It is interesting to note that the children in the studies of Ferreiro and her colleagues (e.g., Ferreiro and Teberosky, 1982) placed a high level of emphasis on writing their own names. Similarly, the children in this dissertation study were highly focused on fingerspelling their own names (and subsequently writing their own names).

The other roles of fingerspelling in the children’s literacy development

As Lindsay acquired the second skill of fingerspelling as well as her literacy in general, she became comfortable with using fingerspelling as a tool to ask for meaning.
There were many instances throughout the study when Lindsay used fingerspelling to request assistance. For example, when reading a story with me, she (5-8) fingerspelled S-M-I-L-E and then asked me what the printed word meant.

Finally, an additional way of conceptualizing the role of fingerspelling must be considered: For each child in this dissertation study, fingerspelling served as a bridge in the informants’ basic understanding that print represents meaning. Through fingerspelling, the children saw that print is composed of individual letters that contain meaning in a particular system of letter strings. In other words, it appears that fingerspelling was pivotal in developing print awareness, an understanding of the nature of print (Adams, 1990). It would have been simple enough for parents and teachers to simply point to the printed word and then associate it with an ASL sign.

In this subsection, I discussed the central role of ASL and fingerspelling in the literacy development of each child in this study. It is difficult to visualize where the children would be in their literacy development if they did not have full access to language from birth. It is also necessary to briefly acknowledge that ASL does not lend itself only to the ability to understand books, but the books also lend themselves to ASL development. During the observations of parents and teachers reading to the children, the pictures in books supported ASL language and conceptual development. For example, most of the children in the study had never seen a giraffe in real life, yet when they went to the zoo for Kieran E.’s 3rd birthday, all of them were instantly able to sign “giraffe” in ASL. All of them had undoubtedly seen pictures of giraffes in books and experienced communication about giraffes that would have been difficult without books. When the
children eventually learn the word “giraffe” in print, they have a large conceptual
foundation in which to map the English word, making “giraffe” much easier to not only
to read in English print, but also to comprehend.

I also discussed the role of fingerspelling in the literacy development of the
children in this dissertation study. Perhaps one of the more unexplored roles of
fingerspelling is how it elicits print awareness. Print awareness is a complex phenomenon
as children move from face-to-face symbols in language to an even more abstract symbol
system, print. Ferreiro and Teberosky (1982) found that the children in their study placed
a high level of emphasis on writing names. Similarly, the children in this study placed a
high level of emphasis on fingerspelling their names and then writing their names using
information from their learning the fingerspelling of their names. The connection is clear
and this seemed to promote a higher level of awareness and understanding about the
nature of print. More studies are needed to explore further the role of fingerspelling in
eliciting print awareness.

*Literacy Development Within the Social Worlds of the Children*

In this subsection, I focus on examples of how the children in this dissertation
study interacted with adults and each other as they transacted with print. The examples
were selected from different times throughout the study and show that like hearing
children, Deaf children take advantage of social opportunities to learn more about print.

Context: In the preschool classroom, Kieran E. (age 3-9), Lindsay (age 5-10) and
Dustin (age 3-7) participated in the community storysigning time. At the end of the
storysigning, the storysigner asked the students if they wanted to borrow the book. Kieran
E. and Lindsay promptly raised their hands which created a problem as they were both to go separately into their respective classrooms for quiet reading time. However, the teachers agreed to allow them to read the book together in the kindergarten classroom. Dustin decided to follow and the boys got settled in the reading corner with pillows and a blanket. Lindsay sat down facing them (the following vignettes were transcribed and translated from ASL to written English):

Lindsay: Ok. I will read and you two turn the pages.
Dustin: (Gets another book from the shelves and opens it)
Lindsay: (Looks confused) But I can only read one book.
Dustin: (Ignores Lindsay and continues reading his book)
Lindsay: Ok. Do you want to read this book? That’s fine. I will read two books with both of you then. Kieran- you open the book. Yes, that’s right. What do you see?
Kieran E.: (Answer unclear)
Lindsay: That’s right- good job! And look what happens on the next page. (Redirects attention to Dustin). You’re supposed to wait for me.
Dustin: What’s that? (Pointing to a picture in the book)
Lindsay: The boy’s upset because he wants to go home. (Lindsay is making it up)

Dustin and Kieran continued reading two separate books while Lindsay provided support as she perceived a teacher or parent would. As the classroom was largely uncharted territory for the boys, they were frequently distracted by the environment.
Upon finishing his book, Dustin proceeded to explore the room and finds a stack of index cards with English words and Lindsay rushed up to assist:

Lindsay: I will help you. You have to spell them.

Dustin: (Hands cards over to Lindsay)

Lindsay: (Signs and points to the words) Bat, fat, M-A-T\textsuperscript{11} (Gets her teacher’s attention) What’s M-A-T? I forgot.

Teacher: Look at the picture in the back.

Lindsay: Oh. Mat.

During this literacy event, Lindsay proceeded until the index cards were done and then the boys went back to their classroom. This example illustrates how an older child (Lindsay) shared her knowledge of English print with the two younger boys (Dustin and Kieran E.). She used an adult-like Discourse style that she would have never used with peers her age. Lindsay recognized that the boys were not her equals when it came to reading and writing. She proceeded to take it upon herself to mediate texts. Her thinking is also illustrated by the following exchange that she had with me when I asked her how she finds out how to spell English words (the following vignette was transcribed and translated from ASL to written English):

Researcher: What do you do if you don’t know how to spell a word?

Lindsay: I ask my mom and dad.

Researcher: What if you can’t ask your mom and dad?

Lindsay: I ask you. (Laughs)

\textsuperscript{11} Hyphens are used to demonstrate that letters or numbers were fingerspelled on a one letter/number to one handshake basis using the manual alphabet.
Researcher: Ok, what if I’m not here?

Lindsay: I look in picture books, or try to find the words on the walls. I don’t know.

Researcher: How about asking Dustin?

Lindsay: Dustin? He’s clueless! He’s still little. You’re funny.

In part because Lindsay knew Dustin needed to learn, she actively sought out ways to provide literacy lessons to Dustin and his friends. Based on a number of observed interactions between Lindsay, Dustin, Kieran E., and Kieran V., they were usually very accepting of the information that she provided them. They seemed to believe that she was well-versed in the English language. From a Vygotskian perspective, Lindsay served as the more competent peer who provided information to the boys within their zone of proximal development (Tudge, 1990).

Context (as narrated by the classroom teacher): Lindsay (age 5-11) and a classmate were looking at pictures in a book and having a side conversation among themselves. The teacher asked them what they were talking about and the following dialogue ensued (the following vignette was transcribed and translated from ASL to written English):

Lindsay: Why do eyes have red lines in them? Eeww.

Teacher: They’re called V-E-I-N-S. Why do you think?

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12 The zone of proximal development is frequently defined as the difference between what children can do and what they can do or learn with assistance. (For more information, see Wertsch, 1988).
Lindsay: I don’t know. (Proceeds to have a private discussion with her classmate). We know! We need red lines to hold in our eyeballs. If we don’t have the red lines, our eyes will fall out!

Teacher: Well, I don’t see any red lines in your eyes.

Lindsay: I do too have red lines! You have to look closely. My eyes aren’t falling out.

Lindsay used social Discourse with a peer to make sense of the picture. While conversing with her friend, Lindsay moved from being grossed out by veins in eyes to creating a working hypothesis of the importance of veins to prevent a perhaps even more disgusting event, eyeballs falling out. The unofficial world of Lindsay and her peer became official when her teacher took advantage of this unanticipated opportunity to develop her students’ critical thinking skills. In this seemingly minor event, Lindsay gained two pieces of information: 1) How to spell veins, and 2) The supposed function of veins. Her use of critical thinking skills to come up with logical answers was also reinforced. Owocki (1999) also finds that when the appropriate environment is present, children create a variety of play themes. During those times, children discuss, reflect upon and even argue about language. Those play situations naturally contribute to the development of written language.

Context: In the toddler classroom, Kieran V. (age 2-5), Dustin (age 2-9) and Kieran E. (age 2-11) were seated around a kidney shaped table and viewing the storysigning of the children’s book Hands are not for Hitting. The toddler teacher informed me she selected this particular book because of a “bopping problem” that she
has been having in the classroom. The book is displayed on the InterWrite board via a
document reader and projector. Kieran E. and Dustin engaged in a bit of clowning around
and a diaper “show and tell” session. Finally, the teacher gets the boys to calm down, sit
and pay attention (the following vignette was transcribed and translated from ASL to
written English):

Kieran E.: Look! (pointing to the board)
Kieran V.: (Looks at Kieran E.) Look!
Dustin: (Looks at Kieran V.) Look! (laughs)
Kieran V.: Cat! (goes up to the board and points out a cat)
Teacher: Yes, that’s a cat. Please sit down. (Kieran V. sits down)
Dustin: (Gets up and copies Kieran V.) Cat!
Teacher: Sit down! (Looks pointedly at Kieran E. who appears to be
planning to get up) Don’t get up. I want to finish the story and then
you all can come up. (Teacher finishes story amidst several more
similar types of distractions and looks at me) Sometimes the boys
are wild! (After this, the children get ready for snack-time)
Kieran V.: (Reaches out to get a plate and his hand accidentally bumps Kieran
E.)
Kieran E: Hands. Don’t hit! Wave! (Referring to the book text: Hands are for
waving)

The boys seemed extremely distracted during this storysigning session and were
fully engaged in their own social words rather than attending to the book. However,
during snack time, Kieran E. demonstrated that they were able to navigate both their unofficial and official worlds in their own ways and that they were indeed paying attention even when displaying highly social and rather unruly behavior.

Context: In the preschool classroom, Dustin (age 3-6) was signing a story about rockets to Kieran V. (age 3-2), and Kieran E. (age 3-8) using a book displayed on the document reader. The class had learned about the solar system, and the boys were especially enjoying this story. Dustin was still learning storysigning skills and frequently needed to be reminded not to sign to the board but to face the others when signing. (The following vignette was transcribed and translated from ASL to written English):

Teacher: (Interrupting Dustin’s storysigning to pose a question before he proceeds to the next page) Now that the rocket has landed in the water, how does the astronaut get to dry land?

Kieran V: Tow truck!

Dustin: Boat.

Kieran E: (Glances at Dustin and copies) Boat!

Teacher: Kieran V., please turn the page.

Kieran V: (Turns page. The picture shows a tugboat)

Teacher: All of you are right! It’s a T-U-G boat, a boat that tows things.

Dustin: The story is finished! (Takes the book from the document reader and shows the last page individually to classmates just as a teacher would)
In addition to this specific dialogue, several other questions were asked during this storysigning session. The students were asked “Why?”, “What?”, “How?” and “What happened?” After each question, the boys bounced off their answers with each other by copying or looking at each other to determine whether or not the others agreed. Even at three-years-old, the boys demonstrated a need for social validation. Furthermore, at this age, Dustin demonstrated emerging understanding of how to storysign, based on models established by teachers and other peers who have also had their turn on the storysigning platform.

Much of the current educational perspective on the benefits of social learning in younger children’s language and literacy development has been shaped by the work of Vygotsky (e.g., Dyson, 1993, Owocki, 1999, Bordova and Leong, 2006). Although Vygotsky presented his social learning theories decades ago, these theories have consistently been supported by educational researchers and the same theories could be used to explain the struggles of Deaf children who do not have access to language. Interestingly, Vygotsky himself briefly studied language development in Deaf children. He found that the most important thing for Deaf children was access to language through any means possible. He wrote “Any physical handicap—be it blindness or Deafness—not only alters the child relationship with the world, but above all affects his or her interaction with people” (Vygotsky, 1993, p. 111).

In contrast to the Deaf individuals that Vygotsky studied who appears not to have had much language access to others, the children in this dissertation study were fully capable of interacting with family members, other adults and peers through ASL. Within
their worlds, Lindsay, Dustin, Kieran V., and Kieran E.’s opportunities for social learning and continued language and literacy development within a social milieu parallels what is experienced by hearing children. Through ASL as the primarily language medium, the children are able to reveal their personalities, express themselves, receive the full benefit of the experiences and beliefs of their parents and teachers, access their homes’ funds of knowledge, interact in their classrooms as well as the greater Deaf community and learn how to communicate with the non-signing community.

**Conclusion: Chapter 5**

In this chapter, I discussed the sociocultural contexts in which the children were immersed that contributed to their literacy development. I considered the role of the home, the school and briefly, the community. I also took into consideration the role and impact of experiences and beliefs of the teachers and parents. Finally, I discussed examples of how the social worlds of the children within their classrooms demonstrated and even facilitated literacy development. The main assumption of this study as presented by the literature review is that each child in this study will be successful readers and writers because of high levels of communication and access to literacy in the aforementioned contexts. With this assumption in mind, I now revisit the main research question: *How do young Deaf children ages 2 – 5 who use ASL from birth develop literacy in home and school settings over a one year period?* The answer to this question has been provided in-part during this chapter: Deaf children develop literacy when they are able to access information at home, in school, and in their communities through ASL with English print mediated by adults and other peers. Like hearing children, Deaf
children develop literacy when provided ample opportunities to access a variety of symbol systems at home and in school. Additionally, Deaf children also develop literacy in positive contexts that encourage them as demonstrated by the teachers and their beliefs. To add to the body of knowledge that informs the main research question as well as the sub questions, I discuss more specifically each child’s reading and writing development in Chapter 6.
CHAPTER VI: THE EMERGING READING AND WRITING DEVELOPMENT OF DEAF ASL-ENGLISH BILINGUAL CHILDREN

In Chapter 5, I provided an overview of the academic, sociocultural and linguistic context in which the four informants of this dissertation study were embedded. In this chapter, I discuss each child’s literacy development individually and then explored a variety of literacy events in order to answer the following research question: *How do young Deaf children ages 2 – 5 who use ASL from birth develop literacy in home and school settings over a one year period?* In order to answer this question, I explored a variety of data sources including interviews, observations, results of tasks and the Early Literacy Checklist, and student work samples that were collected during the study (see Chapter 4 for discussion of data sets). The information presented in this chapter specifically answers the following sub questions:

- How do young Deaf children ages 2-5 demonstrate literacy development in their written work?
- How do young Deaf children ages 2-5 demonstrate their literacy development as they respond to books and other written material as they read?

In order to analyze the answers to these questions, this chapter is divided into three sections. In the first section, I provide an overview of the reading and writing development of the four informants based on the data gathered from the interviews, observations and work artifacts. I used writing levels to classify the written work (see Table 3 in Chapter 4). The second section of this chapter focuses on hypotheses that were evident in the children’s development of written language specifically framed by the studies done by Ferreiro (e.g., Ferreiro and Teberosky, 1982 & Ferreiro, 1986) and Ruiz
(1995). In the final section, I discuss the impact of the children’s literacy development demonstrated and discussed in the aforementioned sections on the expansion of their graphophonic, semantic and syntactic language cueing systems.

*An Overview of the Informants’ Literacy Development*

In this section, I provide a summary of each of the informants’ reading and writing development during this dissertation study. This information was collected through formal and informal interviews with the teachers and the parents, anecdotal information as presented by the adults in this study, as well as ongoing home and classroom observations, and over 400 student work artifacts and the Early Literacy Checklist (see Appendix H). This overview provides a frame of reference for discussion of specific literacy events in the sections that follow.

Similar to Ferreiro’s informants (Ferreiro, 1986), the writing development of the four children in this dissertation study can be seen in their writing of their own names. Although the children created many pieces of written work over the duration of the study, I discuss their writing of their own names in order to provide focus to this section. Because Lindsay was older and in the later stages of writing development, I also provide a more in-depth look at her writing compared to the other informants. This section is divided by each child with a focus on their reading and writing development presented separately.
Lindsay

Reading

As discussed in Chapter 5, Lindsay was an avid reader from a very young age. According to her parents, she showed evidence of reading names between two and three years old. As Lindsay did not enter the study until well after she had acquired the ability to fingerspell all the letters of the alphabet using print, the exact time frame in which she learned the alphabet in print remains unclear. According to her teachers and parents, Lindsay demonstrated knowledge of all the uppercase letters of the alphabet by fingerspelling letters she saw in print well before she was three years old. At around four years old, she demonstrated a clearer understanding of the nature of print as she began to produce written work that looked increasingly conventional.

Results of the Early Literacy Checklist (Appendix H) showed that Lindsay (age 5-2) demonstrated 100% of the emergent reading abilities that included the following emergent categories interest in reading, concepts about books, word reading abilities and comprehension of symbols and text. At age 5-6, Lindsay’s parents noticed her reading things silently and on her own. During a visit to the bookstore, her mother was surprised to notice Lindsay opening children’s books and attending closely to the text instead of skimming through the pictures as she usually did in the past. During the final interview at the end of this study, her parents stated that over the past year, Lindsay showed an explosion in understanding of written English vocabulary. When told what an English word means in print during reading a book, she usually was able to remember the word when she encountered it in subsequent pages. At the age of 5-10, she had not yet
comprehended new words independently from contextual clues and still needed support from adults. At this age, both her parents and teacher noticed her beginning to codeswitch by incorporating English words through fingerspelling that do not have direct sign equivalents in ASL (e.g., the, is, am, are).

**Writing**

Lindsay’s writing at the beginning of the study (4-10) that included conventional spelling, lettering, and spacing. Her parents provided me with examples of Lindsay’s earlier written work for a better understanding of Lindsay’s development (Figures 13 and 14).

*Figure 13.* Lindsay (age 2-8) attempts writing her own name in a non-linear style. (Level 2)
In Figure 13, Lindsay (2-8) used conventional lettering within a non-conventional structure to write her name. Her writing was classified as Level 2 because she demonstrated awareness of the quantitative properties of her name. One year later, Lindsay (3-8) begins to conceptualize sentences and writing in a more conventional, linear fashion. Her name can be seen at the top of the page in Figure 14. At this age, she demonstrated an understanding of some of the shapes of the alphabet, writing from left to right and creating individual English letters. As she used unconventional strings to represent words and sentences, this work artifact matched both levels one (unconventional sentence strings) and two (name).

Although Lindsay was considered a reluctant writer by both her teacher and her parents prior to the study, Lindsay was already writing many conventional letters. Based on the Early Literacy Checklist (Appendix H), she had met 50% of the listed emergent writing abilities at the age of 4-9.
By the time school let out for the summer, Lindsay (5-2) was able to write many words. During an at-home observation, I asked Lindsay (5-2) to write a story for me. She informed me that writing was hard and she did not like to write sentences. However, she drew and then was willing to write a sentence for me if I agreed to help her with spelling. I assisted her with spelling “yesterday” and she added *it* by herself. She asked me to spell *rain* and in keeping with English grammar rules, I had unintentionally spelled R-A-I-N-E-D. Lindsay wrote down “RAIN,” then looked at her work silently and said “I forgot!” She, then, added *ed* in lowercase letters demonstrating a beginning understanding of the difference between the rain and –ed morphemes. She also automatically segmented the information in two parts, indicative of how she perceived this type of information. I did not classify this work according to levels as I assisted her with this task.
Figure 16. Lindsay’s (5-2) response to the writing task procedure (Appendix I). Levels 2, 4, 5.

I worked with Lindsay (5-2) on the writing task procedure (Figure 16). She wrote down the following words on the front and back of a sheet of paper: *bus, ice, kab* (milk), *baay* (baby), *ball, lou* (chocolate), *Binly...* (bellybutton), *cats*. On a separate sheet of paper, she also wrote *watr* (water) and wrote *baby* conventionally. I selected components of the dialogue to describe the process in which she arrived at some of her spellings.

Researcher: June 12

Lindsay: 1-2-2

Researcher: 1-2

Lindsay: (Used calendar in room to spell June and then wrote 2007)

***

Researcher: Milk

Lindsay: M? M-A-K? (ended up writing *kab* and drew picture.)
Researcher: # ICE\textsuperscript{13}

Lindsay: I know! Easy (sign)

***

Researcher: Chocolate

Lindsay: I don’t know.

Researcher: Try.

Lindsay: ( Writes LOU and did not start with “C” even though the handshape is the same as the first letter of the English word)

***

Researcher: #BELLYBUTTON

Lindsay: What did you say?

Researcher: One more time- #BELLYBUTTON

Lindsay: (Attempts spelling and laughs when drawing)

Researcher: Last one, write cats (For purposes of clarification, I signed MANY CAT)

Lindsay: C-A-T-S! I know that.

During this task, Lindsay (5-2) utilized a variety of resources available to her such as environmental print and clues provided by fingerspelling. She also utilized her knowledge of English grammar and vocabulary to assist her with the completion of this task. I classified some of her unconventional spellings as Level 2 as she struggled to determine the amount of letters needed for words she could not independently spell and

\textsuperscript{13} # denotes lexicalized fingerspelling of a word. The nature of the fingerspelling is changed and not all of the letters are explicit. The speed of the fingerspelling is usually fast and fluid.
mostly used conventional letters (e.g., KAB & LOU). I classified her attempt to spell *bellybutton* as Level 4 as she used her understanding of handshapes in fingerspelling to assist her with spelling and had the alphabetic principle partially correct. Level 5 was assigned to words that she spelled conventionally in print. At the end of this dissertation study, I had Lindsay (5-10) perform the same tasks. She was able to spell *water, baby, and milk* conventionally and with relative ease. She did not use the conventional way of spelling *chocolate* or *bellybutton*. However, she started the word *chocolate* with a C and had more letters. In the span of approximately seven months, she had developed into a more confident writer with increased knowledge of English lexicon.

Lindsay’s performance at the end of the study at age 5-10 was very different than a few months earlier at age 5-5 when she decided to stop writing upon returning to school and became reluctant to take risks. She refused to create any more sentences, even with assistance and would write only a few words at a time. During an observation session in the classroom, I decided to ask Lindsay (5-6) why she wasn’t willing to write. She stated that it was hard to think of words, that it was easier if others wrote for her and complained of not knowing the names for everything.
In spite of her reluctance to write, Lindsay created some written work during this phase. At age 5-6, Lindsay independently wrote a mixture of unconventional spelling and sentences with conventional words and phrases that she knew which included a sense of story structure “The End” along with her brother, Dustin’s name. Closer to the holidays, she began to write again and appeared to be enjoying writing.

I propose a possible analysis of this phenomenon based on the conceptual framework established by Ferreiro, (Ferreiro, 1979-1980; Ferreiro, 1986). As Lindsay moved from the lexical level to the sentence level of writing, she became more aware that her previous hypotheses related to writing were not conventional. In other words, words alone became insufficient and with increasing pressure to create sentences, she realized that a specific structure is needed to accurately convey information in the English language. Along with this realization came a reluctance to create sentences. Compounded by a personality that expects perfection from herself, she was not willing to perform tasks she believed she could not do accurately. As she developed a better understanding of how sentences are formed, she became more willing to experiment. When I stopped by to chat
with her in school for the final time prior to the completion of the data collection, she showed me her written work with pride and asked me to take one of her drawings to scan for the study which indicated that she was feeling much more positive about her writing abilities.

At age 5-8, Lindsay had met approximately 60% of the writing abilities listed on the Early Literacy Checklist. She had not yet consistently used noun-verb phrases, short sentences, capitals and punctuation, descriptive words and complex sentence structures. The information from this data source matches what Lindsay demonstrated in her written work samples.

*Figure 18.* Lindsay (5-9) writes a letter to a friend using representational drawings, conventional spelling and letter-writing concepts. (Level 5)

In a letter to a friend, Lindsay (5-9) demonstrated higher level writing ability. She applied the alphabetic principle in her writing and began to create sentences. She received assistance in writing *better*. Interestingly, although she had consistently written “s” conventionally, she began to invert the “s” suggesting that she was still experimenting
with letter forms. Lindsay used her knowledge of ASL syntax for “Feel better” and “I miss you” which happens to be highly similar in English.

The work samples for Lindsay span three years. During these three years, she moved from writing Level 1 to Level 5. However, this movement was not linear. She moved back and forth between levels as she built upon her semantic and syntactic knowledge along with her English vocabulary and often demonstrated several levels of writing within one written piece. Interestingly, even at the earlier levels, Lindsay seemed to focus on the alphabetic principles of writing and it is possible that this is the type of impact that fingerspelling has had on her writing development.

At the end of the study, Lindsay (5-10) had also started to write to learn as opposed to learn to write. In one instance, she independently developed her own system in which she used writing to keep track of counting numbers during a Math activity. Research should follow children like Lindsay for a longer period of time. In such a way, researchers could explore how, for example, Lindsay’s English sentences become more conventional as she continues to develop her understanding of English syntax and grammar.

**Dustin**

*Reading*

At age 2-9, Dustin recognized several uppercase letters and names in print. At age 2-11, I observed him reading a book with his teacher and peers. He enjoyed pointing to pictures and labeling them in ASL. He also demonstrated a penchant for exaggerating the details of the story through ASL (e.g., “no..no..No..NO!!”). It was clear he enjoyed
reading with his teacher and friends. At the end of the 2006-2007 school year, Dustin demonstrated 17% of the listed emergent reading abilities (Appendix H).

During the summer (3-0), his parents reported that Dustin identified the letter “3” (his age) in the food store. At this time, his parents remarked on Dustin’s increased interest in text. When eating fruit-roll ups that were placed in individual packages, Dustin asked his mother what color each package contained. When his mother told him (e.g., orange and yellow), Dustin stared at her and the package. Finally, he asked how she knew. She told him that she read the label and showed him where to find this information. According to his mother, Dustin seemed amazed and slightly overwhelmed when he realized that text actually contained significant information, not just names of people. Based on information from parents, teacher, and the Early Literacy Checklist, at the beginning of the new school year (3-2), he was able to fingerspell all the uppercase letters of the alphabet from print.

During a classroom activity, the preschool teacher asked Dustin (3-3) to try counting down from ten. Dustin considered this for a moment and then remembered there was a book in the classroom about rockets. This book contained numbers and Dustin was able to independently read and count down using print.

When Dustin was 3-7, he selected a book to read with me with a giraffe character. Although he was proud to show me his favorite books, he did not seem particularly interested in reading a book with me that day. He hurried through the book by flipping through the pages, pointing out a few features and at the end, he said “And the giraffe went home!” This book was very familiar to Dustin and his parents told me he knew
exactly how it ended. “Going home” was not a part of the story. In order to move through the task quickly, he gave me a conclusion that he believed would be acceptable. This demonstrated a developing sense of story, an understanding of how stories worked and how they needed to end. On the Early Literacy Checklist, Dustin (3-6) demonstrated 50% of the listed emergent reading abilities. At the end of this dissertation study, Dustin also knew a number of words (e.g., dog, cat, dad, mom, Dustin and Lindsay).

*Writing*

*Figure 19.* Dustin’s (2-10) first attempt in writing his name in the top right corner. (Level 1)

At the very beginning of this study, Dustin demonstrated his ability to trace his name during sign-in time and showed a lot of interest in drawing and writing his name. He demonstrated high levels of tracing skills and seemed to enjoy tracing his own name. Additionally, he created drawings that included a number of concepts discussed in the toddler classrooms (e.g., bears and animals).
His ability to create conventional letter forms continued to develop and by the time he was 3-4, he wrote some letters of his name and demonstrated knowledge of the quantitative properties required. In a span of a few months, Dustin quickly developed the ability to write his own name as well as the names of others at Level 5 as he used the conventional alphabetical concept with an exact grapheme-chereme (handshape) relationship although his motor skills had not allowed him to create print. This is also illustrated in Figure 22, he decided to write the names of his family members using a dry-erase easel at home.
By the end of this study, Dustin (3-8) had written many words and names using both conventional and invented spelling. He consistently demonstrated pride in his writing and a love for labeling his pictures. Although I did not plan on doing any written tasks with the younger children in the study, because Dustin was at a level where he was able to write some words independently, I asked him to write “bus” in order to see how he would handle this task. In response, Dustin wrote and drew a bus (see Figure 23).

Figure 23. Dustin (3-8) writes “bus,” draws the bus and adds his name partially upside down and backwards. (Level 5)
When I asked Dustin why he wrote his name upside down and backwards, he appeared confused. I then asked him if he could write his name again. Dustin looked at me for a few moments and appeared to be trying to figure something out then wrote his name upside down and from right to left again with the exception of the letter n (see Figure 24).

Figure 24. Dustin (3-8) writes his name upside down and backwards again. (Level 5)

I asked Dustin again why he wrote his name upside down and backwards. He enquired, “You want (pointing to name)?” I came to the realization that because I was sitting across him, he was trying to write so that I could read his name from the opposite vantage point. Reviewing the literature, I have not found anything that explains Dustin’s line of thinking. However, it appears that Dustin hypothesized I would not be able to read his writing if he did not write upside down. He demonstrated an emerging sense of audience and a desire to have me understand his writing. At the end of the 2006-2007 school year, Dustin (2-11) demonstrated 6% of the emergent writing abilities on the Early Literacy Checklist. Seven months later, this percentage increased to 28% at age 3-6. Dustin also moved from Level 1 to Level 5 in writing his name and the names of those important to him along with a few words that he knew. He also remained at Levels 1 and 2 when it came to writing words and phrases that he was unfamiliar with.
Kieran V.

Reading

At age 2-5 months, Kieran V. was able to fingerspell all the capital letters of the alphabet using print except W and G, some lowercase letters, and a few numbers. At that time, the toddler teacher remarked that Kieran V. was a very clear fingerspeller and could fingerspell a few words in English. He also recognized a few 3-letter names/words (cat, dog, dad, mom). Based on my observations as well as those of the toddler teacher it appeared that Kieran V. was skilled at memorizing brief letter sequences and was skilled at recitation. He enjoyed copying people storysigning to him. When I read with him in the classroom at age 2-6, he was primarily focused on pointing to books and labeling the pictures. He had not yet made connections from one page to another. After the summer, Kieran V. (2-10) returned to school knowing all the uppercase letters of the alphabet and many of the lowercase letters. By his third birthday, Kieran V. recognized some environmental print in context and he continued to imitate adults during storysigning.

According to the Early Literacy Checklist, Kieran V. (2-7) met 19% of emergent reading abilities. During an observation and interview session at home, Kieran 3-2 read a self-selected book with me about a fire truck. He focused on labeling the pictures but then began to tell me what would happen in subsequent pages. His familiarity with the book enabled him to create accurate predictions. When I asked whether he liked the book, he replied “Yes! I like fire trucks.” He then proceeded to read David Gets in Trouble. Like the previous book, he pointed to the pictures and labeled them in ASL. However, he also included some additional information and explanations such as “David was wrong! He
will get punished.” This indicated that he was making connections between the illustrations on each page and contemplating the storyline.

At 3-3, Kieran V. had met 38% of the emergent reading abilities listed on the Early Literacy Checklist. Although Kieran V. (3-3) was still at the beginning stages of literacy development by the end of the study, he recently developed the ability to retell stories in his own words. He began to ask for meanings of printed words in the environment and also started to create his own ideas and relate them to pictures in a book. Kieran V. continued to retain and expand upon his knowledge of words that mostly included the names of those who he associates frequently with.

Writing

Figure 25. Kieran V. (3-2) writes “I” and “N” in his name when taking turns with the preschool teacher. (Level 1)

Figure 26. Kieran V. (3-3) writes his name using conventional and unconventional letters. (Level 2)

It was not until near the end of the study that Kieran V. (3-2) demonstrated the ability to write a few letters. At this time, he also demonstrated an understanding of the
need to create letter strings to create words. At the end of the study, his parents noted that Kieran V. (3-3) demonstrated very high levels of interest in print and writing over the prior few weeks. Concurrently, Kieran V. demonstrated a growth spurt in reading and writing, including ability to write letter strings and draw representational pictures. He became better able to draw pictures and asked for assistance in labeling them. When someone fingerspelled English words to him, he was able to label his pictures using both conventional and unconventional spelling and lettering. He also demonstrated an interest in writing names of others independently using letter strings (see Figure 27). At the end of the 2006-2007 school year, Kieran V. (2-7) met 3% of the emergent writing abilities. By the time the checklist was reviewed at age 3-3, Kieran V. had met 18% of the listed abilities.

![Figure 27. Kieran V. (3-3) writes “David” in response to one of his favorite books. (Level 2)](image)

**Kieran E.**

**Reading**

At the beginning of this study, Kieran E. (2-10) demonstrated very little print awareness and focused mostly on pictures and learning related signs in ASL. His toddler teacher remarked on his active imagination and role as the storyteller in the classroom fascinated with dramatic play. In addition to labeling pictures in ASL, he would
frequently comment on pictures in a book and ask his parents “What happened?” When encountering books that were not previously signed to him, he would storysign his ideas on what happened based on the pictures and create his own storylines. According to the Early Literacy Checklist, teachers and parents, at the end of the school year (3-1), Kieran E. had some book concepts including understanding of story flow, and cause and effect. He also had a few words in his written English vocabulary (e.g., mom, dad, Kieran). By the end of the 2006-2007 school year, Kieran E. (3-1) met 17% of the emergent reading abilities in the Early Literacy Checklist (Appendix H).

During the summer and the beginning of the next school year, Kieran E. continued to demonstrate preference for watching the storysigning of books with a clear and interesting storyline. It was not until age 3-6 when Kieran E. began to demonstrate interest in print that he became able to recognize all the capital letters in the alphabet. At around the same time, he started to ask for the meaning of different text in his environment. At 3-7, he and I were reading Goodnight Gorilla and he looked at the ZOO sign at the entrance of a picture of a zoo. He fingerspelled, “Z-O-O” then asked me “What’s that?” The English word is expressed as a lexicalized fingerspelling in ASL and Kieran has himself signed #ZOO in the past. I replied, “Guess.” He signed, “Zoo?” This marked the first time he had read something in print that had not been interpreted for him.

Near the end of this study, the preschool teacher remarked that Kieran E.’s (3-9) strengths included coming up with ideas for stories, alternate endings to books, and expanding upon them. He continued to love playacting related to stories in books.
According to the Early Literacy Checklist, Kieran E. had met 50% of the listed reading abilities when the checklist was reviewed at age 3-8.

**Writing**

*Figure 28.* Kieran E. (2-10) attempts to write his own name using an adult model. (Level 1)

*Figure 29.* Kieran E. (3-6) draws a rocket. In response to a request to identify his name, he pointed to the right center of the picture. (Level 1)

Kieran E. first attempted to write his name at age 2-10 (Figure 28). It was not until Kieran E. was 3-6 when he began to develop representational pictures and ask the teacher to label his drawings. At that time, his signatures remained like the ones he did when he was younger (Figure 29). Along with some of his peers, he began to use nonfiction books as sources of information and ideas for drawing. Kieran E., however,
remained reluctant to write and it took a lot of encouragement to get him to attempt letters.

*Figure 30.* Kieran E. (3-7) signs his own name using unconventional letter forms. (Level 2)

*Figure 31.* Kieran E. (3-8) writes his name using straight horizontal lines. (Level 1)

Kieran E. (3-7) first attempted to write his name (Figure 30) then abandoned his attempts. To encourage Kieran E. to write, the preschool teacher asked Kieran to take turns writing letters in his name. Shortly thereafter, and perhaps in response to the pressures to write in school, Kieran E., began drawing straight horizontal lines to represent writing (Figure 31). When his teacher asked him where the letters were, he replied, “Wait, I will start to write when I am four. I need to study first.”

By the end of the 2006-2007 school year, Kieran E. had met none of the emergent writing abilities in Appendix J. At 3-8, Kieran E. had met 12.5% of the early writing abilities listed. Throughout the study, Kieran E. had moved back and forth between
Levels 1 and 2 as he occasionally demonstrated awareness of the quantitative properties of writing his own name but then went back to writing horizontal lines to sign his name.

Discussion

An analysis of the Early Literacy Checklist results shows that although all of the children came from largely homogenous ASL-written English bilingual backgrounds, their development was not homogenous. As with all children, a variety of internal factors such as the age of each child, their personalities and abilities must be considered. There were external factors also at play. All of the preschool children experienced many things simultaneously in the classroom, regardless of their age differences. No family is exactly alike and even though the family backgrounds were highly similar, undoubtedly all of them experienced different types and levels of emphasis and as well as different materials at home. As discussed in Chapter 5, both intrinsic and extrinsic forces influenced the children’s early literacy development.

Table 4. Summary of the Early Literacy Checklist results

<table>
<thead>
<tr>
<th></th>
<th>Lindsay (5-1)</th>
<th>Lindsay (5-8)</th>
<th>Dustin (2-11)</th>
<th>Dustin (3-6)</th>
<th>Kieran V. (2-7)</th>
<th>Kieran V. (3-3)</th>
<th>Kieran E. (3-1)</th>
<th>Kieran E. (3-8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading</td>
<td>100%</td>
<td>100%</td>
<td>17%</td>
<td>50%</td>
<td>19%</td>
<td>38%</td>
<td>17%</td>
<td>50%</td>
</tr>
<tr>
<td>Writing</td>
<td>50%</td>
<td>60%</td>
<td>6%</td>
<td>28%</td>
<td>3%</td>
<td>18%</td>
<td>0%</td>
<td>12.5%</td>
</tr>
</tbody>
</table>

For each child, the summary of the Early Literacy Checklist results show their growth from the beginning to the end of the research study. In addition to the measure of their emergent literacy as shown in Table 4, the analysis of their reading and writing also provided evidence of growth in their use of written language through their reading and writing.
Mayer (2007) writes that the 115 Deaf children in her study were highly similar to hearing children when it came to Writing Levels 1 and 2. This is also the finding in this study as the informants moved from Levels 1 and 2. Mayer also writes that the children in her study were unable to move to Level 3 because the children did not access the syllabic principles. This study shows that Deaf children do not move to Level 3. Instead, they seem to travel a different route, moving straight to Levels 4 and 5 by making direct connections between graphemes and handshapes. Yaden & Tardibuono (2004) write that conventional representations may not indicate conventional understandings in hearing children. For example, although some hearing children may have memorized the spelling of their names, they may not understand the grapheme-phoneme relationship. For Deaf children, this is quite different. With the exception of lexicalized fingerspelling, the grapheme-chereme (handshape) relationship is often explicit.

Finally and perhaps most significantly, the data from this study suggests that the writing levels developed by Ferreiro and Teberosky (1982) may have been inappropriately applied to Deaf children. A study involving a larger group of Deaf children who are native-ASL users are needed to reconceptualize the writing levels. In Chapter 7, I propose a possible set of levels in which to analyze emergent writing in Deaf children.

In an applicable analysis of Vygotsky’s perspective on early literacy, Bodrova & Leong (1996) write “Vygotsky concluded that young children’s drawings are ‘a unique graphic speech, a graphic story about something . . . more speech than representation.’” (Vygotsky, 1997, p. 138). Learning letters supplies the final component to move the child
from idiosyncratic forms of “drawing speech” to a conventional way of recording speech in written words” (p. 251). The three boys in the study continued to develop ways to communicate in their drawings. Although Lindsay did not drop drawing from her written texts, it is evident from her written work that she increased the amount of text in her writing and reduced the amount of drawings. All of the children were actively engaged in reading, drawing and writing and figuring out ways to express their thoughts (their “speech”) as well as to understand the thoughts (the “speech”) of others.

Hypothesizing the Written Language

“…literacy development, considered as conceptual development, has an internal logic, in spite of the tremendous differences in stimulation, information, and occasions to participate in literacy events that characterize the growth of individual children.” (Ferreiro, 1994, p. 122). In a discussion of written language as cultural objects, Ferreiro (1996) writes that young children are unable to comprehend written marks on a surface until an interpreter shows the children what these marks mean. “This transformation of impenetrable objects into transparent ones is not a one-day process. The reader reading aloud is making mysterious things; at the same time, the reader introduces the child into the labyrinths of mystery. To know that the marks allow the production of language is one thing. To understand how they do it is another” (1996, p. 132).

When children write, they demonstrate their own hypotheses about the literate world that we do not see when they read silently. Hypothesis building is not a linear process. Ferreiro studied numerous children’s written language development and found
that they created highly similar hypotheses evident in their writings and Discourse with adults.

Ruiz (1995) analyzed her own Deaf daughter’s literacy development using information from Ferreiro’s studies. She found that her Deaf daughter developed many of the same hypotheses as the hearing children in Ferreiro’s studies as well as a few seemingly unique to Deaf readers. The children in both Ruiz and Ferreiro’s studies did not follow a simple linear process in which children adopt and abandon hypotheses as they develop. Instead, the children seemed to hypothesize something about the features of written language, reject it, modify it and then pick it up again. In this process, the children formulated their own ideas about written language that eventually develops into more conventional conceptualization following the written system of the adults in their communities.

In order to analyze the hypotheses that the children developed, I depended upon my own observations as well as the observations shared with me by the informants’ parents and teachers. Some of the information is also derived from dialogue with the children as well as my analyses of their written artifacts. Because Lindsay is the oldest and the most developed reader and writer, much of the latter part of this section focuses on her development of hypotheses about written language. I do not discuss all of the hypotheses present in both Ferreiro’s and Ruiz’s work but carefully selected those that were most visible during the study. I divide this section into three parts: hypotheses common to both Deaf and hearing children; hypotheses potentially unique to Deaf children; and a discussion of prominent hypotheses in other studies that were not
observed during this dissertation study. All of the aforementioned hypotheses are highlighted in bold for clarity.

**Hypotheses Common to Deaf and Hearing Children**

**Hypothesis: Specific marks on surface have meaning (and I will be able to access it!)** As Ferreiro and Teberosky (1982) found, children initially hypothesize that written marks contain meaning. This is by no means an easy feat and requires relatively abstract thinking in relating symbols to actual ideas and objects. Ferreiro (1996) explains that for children to arrive at a hypothetical conceptualization of print itself, they must have the sociocultural context in which to do so. Mediated through fingerspelling (see fingerspelling section below for additional information) and acts of reading and pointing to text, all of the children developed their own conceptualizations of the purpose of print. Dustin’s (3-0) realization that his mother was reading information provided by the fruit roll up wrapper to ascertain the color served to solidify his hypothesis.

Not only did the children in this study develop hypotheses about the nature of print, they also hypothesized that they would learn to access print independently. Using a page from a picture dictionary, I signed a few words and asked the informants to identify where the printed words were, all of the children in this study pointed to the text closest to the picture related to my sign (e.g., BOAT). This shows that they knew that print held meaning.

At age 3-8, Kieran E. was watching me work on this dissertation while I was reviewing a few articles. Looking at the articles, he remarked, “Dad says I can’t read these (the articles). I will learn and study and maybe when I’m five and BIG! I can read.”
When I asked my husband what he had meant, he said he was trying to get Kieran E. to stop fiddling with my work and told him, “You can’t read them yet, leave them alone.” Kieran E. had hypothesized that print would become more accessible when he became older. During an interview, I asked Lindsay (5-10) whether she could ask her brother, Dustin (3-7) for help with reading. She laughed and remarked, “No! He’s clueless” then as an afterthought added, “Well, he’s little and still learning.” Dustin simply looked at Lindsay, perhaps in his eyes, a reading and writing expert, and did not disagree.

**Hypothesis: Pictures and print should be in close proximity to each other.** In Ferreiro’s (1986) study, a boy named Santiago hypothesized that the pictures closest to the print tells you what it means. When working and observing the boys in this dissertation study, I observed them reading a picture dictionary. There were many pictures in the book adjacent to the names. I asked each of them separately (Kieran E. age 3-9, Dustin, age 3-7, Kieran V., age 3-3) to fingerspell *owl* for me. Without variation, all of them looked puzzled at my request but then began to search for the picture of an owl. Using the print in closest proximity, each of them fingerspelled owl correctly. According to the teachers and parents, none of them had been asked to do something like this before.

At home I spelled out a few brief words to Kieran E., and asked him to find the meaning. He searched the pages and found related pictures. However, because the pictures were not organized in close proximity to the written text (the text above the pictures were closer in proximity but the text below the pictures were the ones directly related), Kieran E. selected the picture closest to the text that I fingerspelled, the pictures were below the text and unrelated.
In relation to this, Ruiz’s (1995) daughter also hypothesized that letters she created needed to touch the pictures. This was not consistently seen among the children in this dissertation study, perhaps this was because Dustin, Kieran V., and Kieran E. was younger and Lindsay was older than Ruiz’s daughter at the time of this study. However, a few examples began to emerge at the end of the study. At home, Kieran V. wanted to draw a picture of cat. He started with ears and then his father helped him draw the face. He filled in the rest of details such as eyes, nose, mouth and whiskers by himself then signed cat and asked for help in spelling the word. His father fingerspelled C-A-T as he wrote down the letters himself. Kieran V. labeled CAT directly on the picture. Similarly, during the previous summer, Lindsay (5-2) would not write labels without pictures in close proximity (see Figure 16). When asked why, she said, “Pictures are needed so that people can understand!” She viewed pictures and text as interconnected that should not exist without each other. More recently, when Lindsay (5-9) created her McDonalds’ sign without any pictures (see Figure 3), she dropped her own picture-text hypothesis and moved on to conceptualizing print as a system that can be independent of pictures.

**Hypothesis: Letters belong to people.** This is an important concept presented in both Ferreiro (1986) and Ruiz’s (1995) studies. They found that both Deaf and hearing children associate letters in the alphabet with specific individuals (e.g., M belongs to mom) and that there is a separate letter for everybody. All of the younger informants in my study started going through this phase between the ages of 2-10 to 3-6 as they began to conceptualize the nature of print. I provide three specific events to illustrate this point:
1) Dustin (3-3) and his classmates found rulers in the classroom that included the alphabet. Kieran V. (2-11) recognized the letter o. One of the classmates pointed out y. After some discussion with the teacher who then became involved in the conversation, they came to realize that no one in the class had a y in their names. Kieran E. suddenly signed “Y is Lindsay!” Dustin became upset and signed, “But Lindsay is my sister, Y is hers!” Apparently, he became upset that Kieran E. “stole” his sister’s name by announcing it before he did. Kieran E. apologized and said, “Yes, y is yours.” In essence, Kieran E. was saying that the letter y belonged to Dustin because Dustin was Lindsay’s brother and therefore, had more rights to that letter.

2) At 3-3, during a reading activity, Kieran V. identified “D” as belonging to his father “dad”. Then he remarked, “D is for Dustin? Not Dad?” His father fingerspelled both names and explained that they were different. Kieran V. considered this and then signed, “D-U for Dustin, D-A for Dad?” This marked a modification in his hypothesis and a beginning understanding that more letters were present in a name.

3) By coincidence, there were two Kierans in the same class. This created numerous conflicts when the children were in the toddler classroom because their sippy cups and personal items were labeled with their first names. All of the children were taught to identify their names and know which items belonged to them. Kieran V. (2-6) and Kieran E. (3-0) frequently argued in class saying, “K is mine!” The teacher resolved the conflict by adding V. and E. to their first names. However, they did not learn to recognize that their names have more than one letter. Kieran E. said to me, “Kieran (V.) share K with me. E. is mine.” Kieran E. was not yet ready to drop the hypothesis that
letters belong to people. Instead, he appeared to modify his hypothesis and hypothesize that some letters had to be shared, and other letters do not.

**Hypothesis: More than one letter is needed to make a word.** Mariana, one of the informants in Ferreiro’s (1986) case study demonstrated quantitative properties in her writing. Ferreiro labeled this as the “**Intrarelational quantitative differentiation.** It is expressed as the minimum quantity of letters that a string must have in order to allow a reading interpretation” (p. 42).

At 3-3, when Kieran V. begins writing letter strings, he adds a number of “I”s to his own name as well as the character in a book, David (see Figures 26 & 27). According to his parents and teachers, Kieran V. kept insisting that several “I”s were needed. In essence, Kieran V. determined that one is simply not enough to create a string of letters that quantifies as a word. The other children in this study such as Lindsay (see Figure 14) also conceptualized that strings of several graphemes are needed to create words and sentences.

**Hypotheses Possibly Unique to Deaf Children**

**Hypothesis: one chain of letters = one sign.** This is a potentially new hypothesis that was not found in other studies. The Kindergarten teacher was helping Lindsay (5-10) spell ice cream. Lindsay proceeded to write *icecream* without a space in between the two morphemes. When the teacher told her that in English, two words are needed, she replied, “but there’s only one sign.” Similar to the Italian word, *gelato*, there are no separate morphemes in ASL. Although the English word ice cream has one ASL sign and *ice* and *cream* are not signed separately. Due to the ages and developmental levels of the other
informants, it is not clear whether this hypothesis is unique to Lindsay or common for Deaf children.

**Hypothesis: Fingerspelling the letters is necessary to help you write the English word.** Seemingly similar to how some hearing children sound out words as they write, Lindsay fingerspelled words when trying to remember the English word. At one point, she seemed to hypothesize that she needed to fingerspell the words prior to writing them down. During the written task (Figure 16), Lindsay (5-2) fingerspelled every one of the words before writing. In a couple of instances, she fingerspelled the word correctly or almost correctly but this spelling did not always translate to writing (e.g., Milk). However, this did not deter her from using this strategy throughout. Dustin (3-5) was also observed using this strategy to write *pool* in his preschool classroom. This word is commonly fingerspelled in ASL in a lexicalized form. Although Kieran V. wrote down letters that were spelled out to him (e.g., C-A-T), it does not appear that he had developed the hypothesis by the end of this dissertation study and it remains unclear whether Kieran V. and Kieran E. will develop similar conceptualizations.

**Hypothesis: You can make up handshapes to fingerspell letters that you do not know.** At recess, Kieran E. (3-7) borrowed a simple book, *Baby Bop's Toys* with one picture and one English word on each page from the toddler classroom. He and the kindergarten teacher read the book together. After completing the book, Kieran E. went back to a page with an image of a doll with Doll written on the bottom. Because Kieran E. was not yet familiar with the letter L in lowercase form, Kieran E. invented a
handshape similar to tracing two tally marks in the air using his index and middle fingers. He then repeated “D-O-(two tally marks).”

In an effort to compensate for not knowing how to fingerspell the lowercase form of the letter ‘L’, Kieran E. hypothesized that he could invent a handshape that represented the letters. In essence, he borrowed visual concepts from English print to assist him with his expression of the story using ASL. It is also important to note that he developed one sign for the two separate ‘l’s in their lowercase form. He seemed to see the two separate, yet identical, letters as one concept. This appears to relate to the letters belonging together hypothesis discussed next.

**Hypothesis: Certain letters belong together.** Previously, I discussed Kieran E.’s developing a single handshape to reflect two lowercase ‘l’s that were shown together. He appeared to be expressing a developing conceptualization that letters can belong together. Two out of the four children in this study explicitly invented their own way of attaching one letter to another. In a conversation that I had with Kieran E. (3-9), he asked me to spell his younger brother’s name which ends in –en. He decided to copy me and ended with fingerspelling –e-a-n instead of –e-n. I informed him that this wasn’t accurate and that his brother’s name ended differently. Kieran E. became indignant and told me this was wrong. His younger brother’s name had to end with –an. When I asked him why, he used both hands to place the handshapes A and N together to demonstrate that they belonged to each other, similar to how his own name is spelled. He then said “A (using left hand)-N (using right hand simultaneously) must go together!” Again, I asked why and he simply, “Have to. Same with M (using left hand)-O (using right hand
simultaneously).” In essence, he was informing me that the letters m and o needed to go together as in *mom*. It needs to be noted that using both hands to express two different alphabetical handshapes almost simultaneously is difficult and relatively rare for children of Kieran E’s age. However, because Kieran E. signs with his left hand as the dominant hand, and eats with his right hand, he appears to be ambidextrous in certain contexts. This may have contributed to his ability to explain his line of thinking to me.

Lindsay’s father explained that Lindsay (5-10) had stopped reciting the alphabet correctly. She had grown into the habit of reciting “. . . m, n, o, p, q, r, s, t, i, n” After her recitations that end in i, n she became confused. When Lindsay learned how to spell her brother’s name *Dustin*, she associated st with in. When her parents explained to her that she needed to continue with u, v, w, she remained insistent on adding i, n, after s, t.

Seeing letters as going together is possibly an attempt to make sense of seemingly enormous amounts of letters found in print. Both Lindsay and Kieran E. had chunked information into parts that were meaningful for them.

**Hypothesis:** The handshape of individual signs tells you how the first letter is spelled in English. In ASL, there are some signs that are initialized; the handshapes of these signs are formed by the first letter of the English word. In a few cases, the signs are initialized by other letters within the English word, and not the first. In many cases, signs are formed by handshapes that resemble the fingerspelled alphabet, but have nothing to do with the English word. Ruiz (1995) found that her daughter, Elana, hypothesized that the handshape informed her how the word began in English. She formed this hypothesis at 4 ½ years old and it continued to age 7.
When asked to write chocolate, a sign that is formed with the C handshape, Lindsay (5-2) did not begin her invented spelling with C. At that time, she had not yet developed this hypothesis. At age 5-10, she asked her teacher how to write mountain. The kindergarten teacher asked her to guess first. She sat for a while struggling to come up with the English spelling. Finally, she started by writing A. When her teacher asked why she started with the letter A, she replied by showing the A handshape to the teacher and then signing MOUNTAIN. Mountain is signed with the A handshape in ASL. Her teacher informed her that although it seemed to begin with the letter A, in English, it begins with the letter M. As it was near the end of the study, it was the only example I came across of any of the informants’ using this hypothesis. It is unclear as to whether Lindsay would continue with this hypothesis or whether it was something she used for one day only.

_Hypotheses Found in Other Studies But Not Observed in This Dissertation Study_

Although there were a number of hypotheses found in other studies that were not observed during this dissertation study, I am going to discuss three of them. The first two are significant hypotheses frequently found and presented by other researchers, the _nonsystematic quantitative differentiation_, and the _syllabic hypotheses_. The final one I discuss pertains to Ruiz’s (1995) study on how her Deaf daughter developed hypotheses related to the use of /s/ to express plural forms. I include this one because one of the informants, Lindsay, also struggled to comprehend the use of /s/, but in a different sense.

**Hypothesis: Interrelational (nonsystematic) quantitative differentiation** (Ferreiro 1986). Ferreiro wrote that children develop hypotheses pertaining to the size of the printed word based on the size of the actual object or person. Ruiz (1995) also found
that her daughter Elena hypothesized that people need big letters to write about big things. During the entire study, I paid special attention to this hypothesis as it appears logical that the informants would also develop the same type of hypothesis. However, by the end of the study and much to my surprise, none of the children did.

In an attempt to determine whether or not the children in the study had actually formulated such a hypothesis, I wrote a long nonsense word and a three letter nonsense word and showed the words to the informants. Simultaneously, I showed pictures of several different sized objects and asked where the words belonged. None of them selected the largest or the smallest object matching the size of the words. I explicitly asked Lindsay whether larger objects needed longer words. She looked at me and asked, “Why?”

Upon further analysis, it appears that the children in both Ferreiro’s (1986) and Ruiz’s (1995) studies were a little older than four years old when they developed this type of hypothesis. Lindsay was practically five years old when she entered the study and the boys were younger than four years old by the end of the study. The lack of evidence for such results does not mean that they will not, or have not formulated this hypothesis, but possibly that they simply were not of the right ages and/or developmental stages.

**Syllabic hypothesis (Ferreiro & Teberosky, 1982).** A major hypothesis that pertains to the hearing children in Ferreiro’s work is known as the syllabic hypothesis. Hearing children move from using one letter to represent one spoken word to one letter representing one spoken syllable. For example, *Ma-ri-po-sa* (butterfly) is conceptualized by an informant as having four letters and *ta-za* (teacup) is conceptualized by another
informant as having two letters (Ferreiro, 1979-1980). “Children may remain for long periods with the syllabic hypothesis, in spite of very precise pressures of the milieu. In many cases is only after having explored several ways-out-of the conflict unsuccessfully that they discover that one has to abandon the syllabic hypothesis, and replace it by an analysis which goes beyond the syllable” (1979-1980, p. 18-19).

Further study is needed to determine what replaces the syllabic hypothesis for Deaf children. However, the hypotheses created by the children in this study propose two possibilities; 1) Deaf children divide words into small parts as a way to process large amounts of information in a word, and 2) It is possible that Deaf children move very quickly from a one sign=one letter conceptualization to a one sign=full English word mediated by fingerspelling. When fingerspelling, each individual letter can be given in its entirety. When Dustin (3-7) asked me to spell giraffe for him, I spelled it quickly, but clearly. He was instantly able to see that giraffe had many individual letters that look quite different from one another with the exception of the F-F in the middle. Hence, it would not have made sense for him to hypothesize different ways to write the word, but to transcribe onto print what I had spelled out for him. A string of seven letters is long, especially for a child of Dustin’s age. This is potentially where associating one letter with another comes in which lends itself to chunking fingerspelled words in smaller but meaningful segments.

Adding an /s/ to several words in a sentence is needed to appropriately express plural forms. Ruiz’s (1995) daughter, Elena formulated a hypothesis about the letter /s/ in relation to making words plural or in relation to establishing plurality. She
hypothesized that /s/ needed to be added to other words in the same sentence to ensure number agreement between modifier/noun and subject/verb agreement (e.g., “magics books”). I did not observe Lindsay develop this hypothesis, the only informant old enough to understand the concept of plural forms as presented in English sentences.

However, I did observe her struggle with her conceptualization of how the English grammar uses the plural form. When reading a book about a girl whose dog followed her to school, Lindsay signed aloud what the little girl in the story said to her dog: “Dogs don’t go to school.” Lindsay then remarked, “There’s only one dog in the story! Why did it say dogS?” She did not understand that the word dogs pertained to a general concept, not to the specific dog in the story. It remains unclear exactly how she conceptualized the role of /s/ in her writing as she remained at the very beginning stages of sentence writing by the end of this study.

In conclusion, the children in this dissertation study developed a variety of hypotheses that were similar to that of hearing children. They also developed a variety of hypotheses that were unique to them as native ASL users. More importantly, the fact that they developed hypotheses shows an interest in the written world, an intrinsic desire to understand print mediated by their external worlds. The active hypotheses-building of the children can only serve to enable them to continue developing their literacy abilities.

The Development of the Semantic, Syntactic and Graphophonic Cueing Systems

Children start reading and writing very early because it is a cultural phenomenon. “The view that written marks simply mirror oral language is not the starting point of children’s inquiries. They do not approach written marks as a set of separate pieces, to be
learned one by one. They try, from the very beginning, to understand the structure of the system (Ferreiro, 1994).

The children in this study also demonstrated a desire to understand the nature of print. During the initial interview with Lindsay and Dustin’s parents, the parents stated that Lindsay (5-0) was forever asking “what does this say?” and pointing to text. She also frequently asked “how do you spell (insert word here)?” The following example illustrates how Dustin actively searched print information in his environment: Dustin and Lindsay are sitting on their sofa at home. In response to a Dora the Explorer television episode, their mother was telling Lindsay how to spell barn. Dustin (3-8) appeared not to pay attention and was engaged in watching the show. A picture of a barn was shown and the Spanish word *granero* was displayed. Dustin turned to his mother and said, “It doesn’t match! It doesn’t have B!” Unbeknownst to his mother, Dustin was indeed paying attention and actively searching for connections between what his mother said and what was happening on the show.

At the final interview, Kieran V.’s father explained that Kieran V. (3-3) had started going up to the mall directory and fingerspelling the letters that he recognized. He would then ask for meanings of the words on display. Kieran V. also frequently asked his father to write down random strings of letters for him (e.g., k e k e d) and enjoying this. Kieran V. had recently read a word in a book and asked his mother “what is B-U-G”?

Similar to the other informants, Kieran E., has also begun to demonstrate higher levels of interest in print and its meaning. At age 3-9, he watched his father put up a Valentine’s sign that said “Home is where the heart is.” He asked me what that sign said
and why his father was putting it up. It was not a simple concept to explain to a three year old and I pointed out the words to him as well as tried to explain its meaning. His father also caught him fingerspelling letters from the environment to himself at times and this indicated to us that he was paying attention. As the informants increased their knowledge of print, they increased their motivation to learn more which in turn, increased their knowledge of print.

In the process of increasing knowledge of print and understanding the structure of the system, research on hearing readers show that they develop and access specific cueing systems in order to make sense of print (Goodman, 1996). Similarly, each of the Deaf children in this study developed strategies that access the semantic, syntactic and graphophonic cueing systems. Along with a few new examples, I use some of the examples previously discussed in order to examine how the informants developed these strategies that lead to hypotheses about the language cueing systems.

Semantic

All four of the informants in this study were actively engaged in developing their semantic cueing system through a variety of ways. This includes experiencing storysigning to develop story sense (e.g., regular storysigning sessions in the classroom and Dustin’s ending to the giraffe story) and development of prior knowledge and semantic concepts through ASL (e.g., Dustin’s use of tomorrow). All of the informants were able to read their own names and names of others as well as common names and symbols in their environment (e.g., the logos for the movie Cars, and McDonalds) prior to knowing the letters of the alphabet. Each of the informants acquired this knowledge at
different ages. After the acquisition of at least a few letters in the alphabet, all of the informants started noticing letters in their environment and developed an interest in knowing what the letters mean. At the same time, they developed a clearer understanding of what words mean demonstrated by their repeated requests to parents for interpretation of texts in their environment and in their books. However, use of semantic cues is not limited to vocabulary knowledge alone.

The informants also used context to make predictions about text as illustrated in the following example: Kieran E. (3-6) was playing with a toy truck that held motorcycles in the back. He read the license plate and fingerspelled H-E-S-S (the brand name of the truck). I asked him what he thought it meant and he replied, “It says, you must put the motorcycles here.” In essence, Kieran E. was actively creating predictions about text from its context.

The informants also developed resource skills in which they searched for the meaning of English words and phrases using pictures and information in the environment. In one instance, Lindsay (5-9) wanted to type Snow White. She asked me to spell White and when told that she needed to try it herself first, she found a picture dictionary and wrote the word accurately in less than a minute.

The informants used pictures to predict meanings of text. This is illustrated by the informants’ hypothesis that pictures closest to the text inform meaning. Another example demonstrates how one of the informants used pictures to inform meaning: One evening, Kieran E. (3-4) read Hug with me at bedtime. Nearly every page in the book has only one word in it: hug. He fingerspelled the word with my assistance and then I provided him
with the ASL sign so that he would understand what this word meant. Afterwards, I fingerspelled H-U-G and asked him what it meant and he repeated the ASL sign that I gave him. When he flipped through the pages of the book, I pointed to the print and asked him what *hug* meant. Although his fingerspelling was consistent, his answer varied depending on the pictures provided in each of the pages. He had developed a prediction strategy using pictures. Although Kieran E.’s understanding of how print works wasn’t conventional, this strategy will probably remain intact in keeping with the prediction strategies that readers use when they encounter words that they do not know (Goodman, 1996).

Children’s’ books played a central role in the children’s development of the semantic cueing system. All of the children moved from using ASL to label pictures in a book (e.g., “ball”, “train”, “baby”) to retelling stories using pictures or using information from previous storysigning experiences. During this time, some of the informants also moved from completely ignoring print to recognizing a few letters to reading whole words. They also learned to make connections from one page to another in small increments. In essence, the children developed the ability to transact with books starting with attention to parts of books (e.g., pictures, pages). The oldest informant, Lindsay, ended with the ability to transact with many of the components of a book, using both pictures and written text to aid with comprehension.

*Syntactic*

Largely due to the young ages of the informants, relatively few pieces of data were gathered regarding their development of strategies to access and develop their
syntactic cueing system. Lindsay was the only one who transacted with sentences independently. When writing CATS (Figure 16), she used her knowledge of grammar rules to assist her with writing. It can be surmised that this knowledge also helps her with reading comprehension.

During one observation, I had Lindsay (5-9) sign aloud a book to me titled Biscuit Goes to School. During this reading, Lindsay signed the words and followed the text fluently. She had read this book a few times prior and was familiar with the names used in this story and moved through the book with relative ease. On one page, she signed “STAY H-E-R BISCUIT.” After a lengthy pause, she looked at me and signed, “I’m wrong?” Although she was unable to correct her own miscue, she had developed the important ability to catch her own miscue as she looked at the picture and tried to use the sentence structure along with the semantic cues to try to making sense of what she was reading.

**Graphophonic**

Pertaining to the orthographic part of this cueing system, by the end of this study, all of the children in this study acquired at least a visual knowledge of the uppercase alphabet in print. Each had also acquired various numbers of highly familiar words that they recognized within different contexts. They were also well on their way to acquire additional letter forms and punctuation symbols (e.g., Lindsay 5-10 had developed an understanding of quotation marks and periods).

Kieran E. and Lindsay both created patterns that related one English alphabetic letter to another when they hypothesized that letters go together. Additionally, at age 5-
10, Lindsay began to break down words in meaningful chunks. One day in the kindergarten classroom, she explicitly recognized that *today* is comprised of two morphemes (*to* and *day*). This enabled her to quickly understand the word as well as write it herself. Kieran E. and Lindsay both demonstrated emerging skills in creating patterns and chunking words in order to make visual sense of the amount of individual information in a single word.

As for the phonic component, it must be discussed that the word is misleading in relation to this group of informants as the definition often pertains to sound. For hearing children, this component refers to how individuals tap into spoken language for clues on the meaning for the words. The children in this study appear to do this in two distinct ways: 1) By relating fingerspelling and signs to face-to-face communication, and 2) By bypassing the *phonic* component altogether and accessing their semantic and graphic cueing systems to tap into their knowledge of the English lexicon.

*Conclusion: Chapter 6*

Ferreiro (1996) discussed Vygotskian ideas in juxtaposition with the ideas of Piaget and presented the concept that both children’s personal and social factors influence literacy development. In Chapter 5, I focused on the socio-linguistic context in which the informants were embedded and in this chapter, I focused on what the data shows about each child’s literacy development. In Chapter 7, I conclude with answers to the research question and sub questions of this dissertation study. I also discuss possible areas of further study and theoretical implications for Deaf education in general.
CHAPTER VII: FINAL CONCLUSIONS AND THEORETICAL IMPLICATIONS FOR DEAF EDUCATION

In this chapter, I provide a summary of this dissertation study’s findings and I also initiate a dialogue on findings that are relatively as a result of this study and should continue to be explored. I conclude with a discussion of the theoretical and pedagogical implications for Deaf education. During this discussion, I also provide an in-depth look at the role that communication and language play in the literacy development of Deaf children.

Answers to My Research Questions

At the beginning of this dissertation, I discussed that there were very few studies on how Deaf children, who acquire ASL as their first language similar to how hearing children acquire their first language (i.e., with full access to language from birth), develop their second language skills in written English. From this concept, I formulated my main research question: How do young Deaf children ages 2 – 5 who use ASL from birth develop literacy in home and school settings over a one year period?

In order to answer this question, I conducted a year-long case study on four young Deaf children who fit the criteria set forth by the research question: They were native ASL users and were in the process of developing literacy skills in school and at home. Throughout the duration of the study, I interviewed the children, parents and teachers, observed the children in their homes and classrooms, and collected artifacts including student work samples and an emergent literacy checklist for each child. The data collected were used to do two things: 1) Provide me with a fuller picture of each child’s literacy development and 2) Triangulate information in order to ensure the validity of this
study. Additionally, I was fortunate enough to have interested and motivated teachers and parents who supplied me with an unexpected data set of anecdotal information via email and ‘hallway conversations.’

I was allowed full access to all of the children’s written work. One family had photographed every piece of written work produced by their children and I was allowed to search through their hard drive for anything that seemed remotely relevant. For both families that were not my own, I enjoyed full access to their homes and did not encounter a single hesitation in answering a question that I posed. In fact, the information supplied to me answered far more questions than I thought of.

The teachers also allowed me access not only to the information regarding the children in this study but to their own personal lives, experiences and pedagogical beliefs. I was welcome into their classroom anytime and the teachers consistently and continuously volunteered information. As a result, the amount of data collected was much larger than I had anticipated and the biggest hurdle of this dissertation study was not in the data collection, but in organizing the information and deciding on what to include.

I started out with a goal of providing the fullest possible picture of how a specific group of young Deaf children who used ASL from birth navigated their roads toward literacy. In order to do so, I utilized a theme-based methodology (Rossman & Rallis, 1998) to examine the children’s sociocultural context that included, in part, the experiences and beliefs of the adult participants, in juxtaposition with the children’s individual written language development.
How do young Deaf children ages 2-5 demonstrate literacy development in their written work? As evidenced by the informants’ written work demonstrated in Chapters 5 and 6, each child demonstrated a beginning understanding and developing ability to transact with print through the development of their own written language hypotheses. They also began to demonstrate an increasing understanding of the alphabetic nature of English as their writing became increasingly conventional. All of the children in this study fluctuated between lower and higher writing levels as they worked out their written language hypotheses.

Similar to children in other studies (Ferreiro & Teberosky, 1982; Ruiz, 1995) the children in this study formulated their own ideas about written language. The early hypotheses that they developed were highly similar to that of hearing children of similar ages in Ferreiro’s studies (Ferreiro & Teberosky, 1982; Ferreiro, 1986). Due to the spatial rather than auditory nature of their first language, there were a number of hypotheses that the children in this study developed that appear to be unique to Deaf readers. This set of hypotheses especially included ideas about how print relates to their face-to-face language (ASL).

Most notably, and as evidenced in their writing, the children did not develop the syllabic hypothesis, one of the most prominent hypothesis in the studies referenced above. Perhaps in lieu of this hypothesis, two of the children in this study developed hypotheses pertaining to patterns that they believed exists in print. They also chunked strings of letters into small meaningful parts using their hypothetical patterns.
This was also seen as the children moved from more unconventional forms of writing their names to more conventional forms. Mayer (2007), using Ferreiro and Teberosky’s (1982) writing tasks, suggests that Deaf bilingual children struggle with moving to the third level of writing in which children make connections between print and face-to-face language (within the same language). However, the data from this study suggests that Deaf children may not necessarily become limited by the lack of direct connections between ASL and English and that there is a need to reconceptualize writing levels when it comes to Deaf bilingual children. I discuss this topic further as I answer the question about the role that phonological awareness plays on the children’s literacy development.

Based on the data, I suggest four potential word-writing levels: 1) Unconventional writing without any direct connection to signed or spoken words; 2) Conventional and unconventional letter strings to represent words; 3) Mostly conventional alphabetic spelling (potentially matching non-lexicalized and lexicalized fingerspelled words); and 4) Conventional spelling. However, studies on larger populations of Deaf bilingual children are needed to ascertain whether those levels are applicable and appropriate.

Additionally, throughout the year and as the oldest child in the study, Lindsay demonstrated increasing levels of understanding of English morphemes, conventional spelling, and moved from more unconventional sentence forms to conventional forms. Much of the sentences that Lindsay created were based on syntactic information that she gathered when reading and information provided to her by adults. The independent
writing of sentences happened late in this study and studies that follow Lindsay and the other children would be very informative on how Deaf children with full access to language and communication develop the ability to create sentences in their second language, English.

*How do young Deaf children ages 2-5 demonstrate their literacy development as they respond to books and other written material as they read?* I answered this subquestion by providing examples of a variety of literacy events in Chapters 5 and 6. As previously mentioned, the Deaf children in this study relied on the hypotheses that they developed about the written language to assist them in making sense of print that was demonstrated in their discussions about their own written work.

Additionally, when the children in this study read stories with adults during storytelling time, they asked questions about the pictures and about the text. They also asked questions about print in this environment, for example: “What does this say?” when pointing to the print. This indicates a developing awareness of the nature of print and understanding that print serves as symbols that contain meaning. By creating conclusions to their own writing such as “The end,” and making up endings for books such as “And the giraffe went home,” the children demonstrated emerging story sense and understanding of how storybooks work. Another one of the strategies that was frequently observed was the children’s ability to create predictions about the meaning of text by using context clues.

My observations of reading events were framed by what is known from miscue analysis (Goodman, Watson, & Burke, 1987). Throughout the study, it became clear that
the children developed their own version of the graphophonic cueing system by making connections between print and ASL. This was largely done through fingerspelling and transacting directly with printed materials with text mediated by adults in ASL. In Chapter 6, I show that the children developed varying levels of understanding of the visual nature of print, the patterns, and word meanings. They also learned to recognize text patterns and chunks which helped them make sense of seemingly random strings of letters that constitute words.

The children also were highly immersed in the development of background knowledge and their understanding of the world that contributes to the development of their semantic cueing system. Their increased understanding of symbolic forms was demonstrated in the examples of when the younger children in the study, Dustin, Kieran V., and Kieran E. used pictures and context clues to make sense of text.

As the oldest child in the study, Lindsay also demonstrated beginning development of syntactic cues as she attempted to use contextual information as well as information from the sentence structure in texts to make sense of words that she did not know or remember.

What role does phonological awareness play in the written language development of young Deaf children ages 2-5? Vernon and Ferreiro (1999) write “From a developmental point of view, there is no evidence that phonological awareness could arise independently of the efforts to understand an alphabetical system” (p. 411). Phonological awareness, the understanding of phonemes, is also an understanding of small parts of language. If phonological awareness is not separate from children’s efforts
to understand an alphabetical system, then phonological awareness is a way to segment parts of speech with parts of printed words. This matches the development of the syllabic hypothesis in Ferreiro and Teberosky’s (1982) study.

Paul (2000) writes that children need to break down information and considers the need for Deaf children to develop phonemic awareness. Based on the data, the four children in this study developed a type of pattern awareness as they try to understand the alphabetic nature of English print that provides them with a way to segment and make sense of letter strings. The children in this study also accessed their developing understanding of individual handshapes within a fingerspelled word, to make connections between print and face-to-face language. The deaf children on occasion also made direct connections to print when adults provide them with the equivalent ASL sign. Finally, after experiencing a word in print at least several times, the Deaf children in this study appear to bypass the need to make connections between the print to their face-to-face language altogether. By the end of this study, each child was able to instantly read words that they were familiar with, especially their own names.

Ferreiro writes (1988) “May we conclude, from all these analogies, that the acquisition of written language is entirely similar to the acquisition of oral language?” In writing this, Ferreiro discussed how people accept children’s acquisition of oral language as a natural process and do not apply this conceptualization to written language. Similarly, results from the interviews with the Deaf parents and teachers in this study suggest that skilled Deaf readers acquire reading and writing English as a natural part of their language acquisition. I am disturbed by the concept that without access to sound,
Deaf children have to memorize words in print. As mentioned in the literature review, Adams (2002) writes that children need to see a word at least 57 times before memorizing. However, we do not think of learning words (or signs) in any face-to-face language as memorization. The children in this study interacted with print with words not in isolation, but within rich contexts.

The idea that Deaf children are deprived of the ability to read because they cannot hear and make direct sound-letter relationships is false. Young Deaf children with full access to language in ASL from birth make use of a variety of resources available to them that include fingerspelling, direct and indirect connections to both initialized and not initialized ASL signs, developing understanding of patterns, and frequent experiences with print along with the development of cueing systems and written language hypotheses.

*What role does ASL play in the literacy development of young Deaf children ages 2-5?* In this study, ASL was central to the literacy development of the children. This is evidenced by the beliefs and experiences articulated by the parents and teachers as well as the heavy emphasis on language development in the classrooms and homes. ASL played both direct and indirect roles in the children’s literacy development.

Indirectly, ASL was the medium in which children learned about the world, about ideas, opinions, concepts, received information, asked questions, and expressed themselves. Through ASL, they developed the common underlying proficiency (Cummins, 2001), and experiences that allow them to develop their cueing systems.
More directly, ASL allowed the children in this study to have conversations about print, to develop print awareness, to discuss word meanings, to experience storysigning, and to develop hypotheses about written language and the English writing system. Additionally, storysigning in ASL as well as engaging in academic Discourse about texts, the children also developed literate registers as defined by Cox, Fang and Otto (1997).

Perhaps most directly, the children made connections between fingerspelling, initialized signs and print. Perhaps one of the more significant findings of this study was how the informants developed print awareness through fingerspelling. One of the first things that the Deaf children in this study learned to fingerspell was their own name. Similarly, one of the first things that both hearing and Deaf children learn to read and write was their own name. The connection is clear and cannot be overlooked. The fingerspelling of their names allowed the informants to conceptualize individual handshapes which lent to their eventual understanding of the alphabetic nature of print. It is important to recognize that fingerspelling does not only serve as a vocabulary bridge, but a conceptual one that facilitates print awareness, as well.

The answers to these sub questions provide the answer to the main research question: How do young Deaf children ages 2 – 5 who use ASL from birth develop literacy in home and school settings over a one year period? Similar to the discussion presented by O’Halloran and Abate (1997), the data shows that the Deaf children in this study developed emergent literacy skills in ways that are highly similar to hearing children. Like hearing bilingual children (Edelsky, 1987; Tabors & Snow, 2002), the children made use of their first language to transfer knowledge to their second language.
As with hearing children (Wasik, 2004), family literacy practices has a significant impact on Deaf children’s literacy development, especially in promoting positive attitudes and enthusiasm about reading.

From the interview data, it can be surmised that the experiences, beliefs of the parents as well as the training of teachers influenced the children’s literacy development. The adult participants discussed the importance of placing high levels of emphasis on providing a lot of fun and natural opportunities to read and write at home and in school and this matched my observations in the homes and classrooms of these children. Additionally, the parents and teachers also served as a resource for the children as proficient ASL-English bilingual models themselves. Finally, the parents expected that their children would become literate. This seemingly simple expectation has far reaching implications as most Deaf children do not achieve high levels of literacy abilities.

The children in this study were given frequent opportunities to interact with each other and to develop their understanding of the world through ASL. Not only were they engaged in Discourse that developed their first language within their social worlds, they also engaged in Discourse about print.

The children in this study also demonstrated a few unique features of their literacy development that correlates to their use of their first language (ASL) to understand their second (English). They developed written language hypotheses and cueing systems that undoubtedly will serve as foundations for later learning. Perhaps most importantly, they developed a love for transacting with print and an intricate curiosity that will perhaps last them their entire lives. However, as with all children, the answer to how children develop
literacy is not simple and cannot be justifiably reduced to a single dissertation study. The results of this study also demonstrate the need for further and additional studies.

For Further Study

It is very critical that this dissertation study is not misleading. Being a third-generation Deaf child does not guarantee literacy success. One of the predictors of success for the children in this study was that they had parents who had attained high levels of education and were educators and ASL-English bilingual models themselves, lived in middle-class homes that had plenty of literacy resources available to them. It is undisputed that not all Deaf children of Deaf parents read and write well as adults. More studies are needed to examine different factors that impact reading ability in Deaf children of Deaf parents.

Similarly, not all Deaf children of hearing parents fail to learn to read and write well. From Stuckless and Birch (1966)’s early study, it is known that Deaf children who come from families with high levels of communication (e.g., mothers that learned to sign when their Deaf child was a very young age) have high levels of literacy success. More ethnographic studies are needed to explore this group of Deaf adults to analyze the predictors of literacy success and how this informs the field of Deaf education.

Direct and explicit comparative studies on what Deaf parents do to develop their Deaf children’s literacy at home to what hearing parents do with their hearing children as well as what hearing parents do with their Deaf children do may shed light on the similarities and differences of home literacy practices.
Frank Smith (1996) also tells us that children learn to read by reading. Kuntze (1998) also discusses the possibility that Deaf children learn to read from print itself. Studies are needed to find out the point in which Deaf children with full access to language from birth, gather enough English print vocabulary and begin to expand upon their ability to understand unknown words by reading independently and accessing their own cueing systems.

Lindsay and Kieran E. developed a written language hypothesis about the patterns of print and that letters belonged together. Additional studies are needed to determine whether this particular hypothesis is common to Deaf children or unique to the children in this study.

None of the children in this study were writing full sentences independently at the end of this study. Additionally, because ASL uses different types of determiners than English (e.g., a, an, the), more studies are needed to analyze the point at which Deaf children begin writing complete sentences that include English features that are very different in ASL.

Interestingly, throughout this study, the children did not seem to show conscious awareness that the language they transact with in print is a different language than the one they communicate in. In our conversations, Lindsay demonstrated emerging understanding that print is “English.” Perhaps this is due to the different modalities (face-to-face vs. written). More studies are needed to explore the point in which Deaf children who are native ASL users begin to conceptualize the two as separate languages.
In this study, the children were highly dependent upon fingerspelling to access print. Although at the end of the study, the kindergarten classroom discourse incorporated a lot of fingerspelling, there appeared to be a shift in emphasis. Logically speaking, teachers should be able to move from needing to fingerspell text along with the sign to simply telling children what the word means or having the children figure out word meanings themselves using contextual clues. As the children develop a better understanding of the alphabetic nature of print, there should be less of a need for making fingerspelling connections from sign to print. Longitudinal studies on the use of fingerspelling at home and in the classroom would shed light on whether or not the amount of fingerspelling in direct relation to text remains constant, increases, or decreases, and why.

Most of the hearing children in studies done by Ferreiro and her colleagues (e.g., Ferreiro & Teberosky, 1982) developed the syllabic hypothesis between 4-7 years old. Similar long-term studies on children of the same ages who have full access to ASL from birth are needed for a better understanding of the types of pattern-related hypotheses that Deaf children develop at these ages and whether or not they are similar to the syllabic hypotheses that hearing children develop.

Pedagogical and Theoretical Implications for Deaf Education

I reiterate the information presented by the literature review (e.g., Stuckless & Birch, 1966; Kuntze, 1998) that the children in this study fit the demographic of being highly likely to become successful readers and writers. Within this frame of mind, the purpose of this study was not to analyze whether the children in this study would become
literate, but *how* they would do so. Although the *how* question has not been answered in its entirety, researchers and educators must consider what the theoretical implications are for all Deaf children. In other words, what does this dissertation study inform us about good reading and writing pedagogical practices for all Deaf children?

*Pedagogical Implications: Providing an Explicit Context to Allow Deaf Children to Develop Literacy*

As previously discussed, statistically speaking, the children in this study will learn to read and write fluently. The Deaf children in this study were unique in the sense that they were immersed in a language-rich social and academic environment that involved ongoing and consistent access to literacy through ASL. However, teachers and researchers would do well in considering the potential level of achievement established by this group of children. This measure informs researchers, parents and teachers what Deaf children *can* do within a rich context. To provide less is to expect less.

From this study, in addition to the other studies done on Deaf and hearing children discussed in Chapters 2 and 3, Deaf educators, researchers *and* parents need to consider the critical role of early literacy experiences. This includes opportunities to develop critical thinking skills and knowledge about the world. Opportunities at very young ages to discuss concepts such as ideas, feelings, and vocabulary (both ASL and English) are critical to a Deaf child’s literacy development. This involves giving Deaf children opportunities to enter appropriate programs at very young ages. The role of ASL and fingerspelling in homes and classrooms where this is not traditionally emphasized also needs to be carefully considered.
This study demonstrates that the literacy development of Deaf children, as with all other children, is complex and that they are fully capable of developing ideas about the written language along with reading strategies at very young ages. All Deaf children deserve opportunities to develop written language hypotheses and reading cueing systems, both of which promotes literacy development. In order to provide these opportunities, the creation of an environment conducive to the potentially *natural* development of literacy needs to be seriously considered.

Parents and teachers would do very well in asking themselves whether or not their Deaf children are demonstrating development of literacy skills that include discussions about the written language, responding to texts, and the creation of written work that reflects a growing understanding of the nature of English. If their Deaf children are not, frank discussions need to happen about what is missing from the child’s environment and how these factors can be provided.

*Theoretical Implications: The Critical role of Language and Communication in Literacy Development*

No discussion of early literacy development in Deaf children can be complete without the frank discussion of the critical role of language and communication. I now consider the differences between the experiences of the Deaf children in this study compared to the experiences of many other Deaf children. The main difference, and often the only difference, between these children is the level of access to language and communication from birth. The Deaf children in this study were heavily immersed in a language that was 100% accessible to them from the day they were born. Many Deaf
children are not. In this respect, the Deaf children in this study were more like hearing children when it comes to language access.

A common misconception is that Deaf children who use amplification devices (e.g., hearing aids and cochlear implants) are almost hearing. In spite of technological advances, Deaf children who use amplification devices still do not comprehend speech in the fullest possible sense. Spencer and Marschark (2003) cite several studies showing mixed or conflicting results showing the benefit of cochlear implants. In one study, children with four years of experience and training with cochlear implants’ functioning level were similar to children with a severe hearing loss. Other studies show even less benefit with children demonstrating the equivalency of those with a profound hearing loss.

Several studies cited in Spencer and Marschark’s (2003) chapter show that children need years of experience before they attain the highest level of hearing competency. This potentially means years without comprehensible input. Parents and educators need to decide if the time spent on aural training is worth it. The number of hours that a child could spend outside playing, or on schoolwork, is instead focused on his/her disability. The burden of communicating is shifted to the child. Even if a child learns to decode print orally, therein lies the danger of what Girgin (2000) and other researchers have found: Decoding (or sounding out words) does not equate comprehension.

Lest I go off on a tangent here, the purpose of this discussion is to drive home the point that many Deaf children, if not all, do not experience 100% access to language and
communication in their homes and schools throughout their lives without ASL.

Additionally, the data in this study demonstrate that early literacy development is certainly possible without direct print-sound relationships.

To be literate may be one of the most important developmental steps achieved by a child in modern society and it cannot be developed without communication. Without the ability to communicate much of the world is denied the individual. Additionally, without communication serving as a precursor to literacy development, the individual cannot access the ideas, great and small of our world, cannot access all the important societal institutions, and will have little chance of providing for him or herself.

The adult participants in this study clearly articulated how their own experiences shed light on the significance of positive experiences with literacy on their own literacy learning. The word literacy evokes a wide range of thoughts and feelings. For some, the word is positive, perhaps with memories of childhood fairy tales, story time with a loved one, or cooking a wonderful meal from a grandmother’s handwritten recipe. For others, the word holds negative meaning with memories of failed tests, books that seem insurmountable and dull writing assignments. Becoming literate for a number of individuals is a painless task, and they can hardly remember learning to read and write. Yet, for others, it is a painstaking venture filled with obstacles and barriers along the way.

Why is literacy such an emotionally charged word? In modern society, it is rare that a person will become successful without being able to read and write to some degree. Employment opportunities frequently require a person to pass tests or fill out job application forms. Contractors cannot build without blueprints, lawyers need to interpret
the printed letter of the law, and physical education teachers must pass written certification exams. If a person is “illiterate,” he or she will certainly have difficulty gaining access to higher paying forms of employment. In this manner, literacy equates power in terms of financial gain.

In the classroom, children are expected to conduct science projects using written documentation. Math word problems are texts that are analyzed for meaning and information. History is learned through textbooks, primary sources, and historical novels. Additionally, in the past decade, the Internet has become an increasingly significant learning tool. Without the ability to read and write, one gets lost during the information age. It is because of our modern dependence on literacy that the ability to read and write is such a critical component of education.

The acquisition of communication and language should always be the first and foremost consideration in Deaf education as it serves as the cornerstone for further literacy learning which in turn promotes academic learning. As demonstrated in the literature review, the difficulties that educators face when it comes to agreeing upon the best way to teach literacy skills to all children is perhaps magnified when it comes to teaching Deaf children.

Educators and researchers must go back to the basics and examine the following question closely: How do Deaf children begin to acquire reading and writing skills? In considering this, I now discuss how literacy is developed in all children. Literacy development is made possible only when a child, regardless of hearing status, has access to general knowledge through clear and accessible communication and language with
adults and peers. In ideal circumstances for Deaf children, the acquisition of reading and writing starts at a very young age. From birth on, children begin their journey to literacy by learning how to use language as a communication and tool for learning. However, they must acquire some world-knowledge first before they acquire basic literacy skills.

Making sure children understand printed letters and words through development of a printed vocabulary and certain reading strategies is traditionally a primary concern. However, learning what the marks on the pages mean is only the latter part of the literacy development process. It becomes easy to forget the critical role of fully accessible communication and language in this process. The children in this study began their journey toward literacy when they learn about thoughts, ideas, feelings, actions and things in the physical world through communication and language. Those concepts were later transferred onto their understanding of the printed word.

When discussing literacy acquisition in hearing children, Catherine Snow (1983) writes “Learning to read has traditionally been seen as a cognitive problem – something children have to solve on their own, inside their own heads. Only recently has reading been treated as a social phenomenon – one that often occurs by and in groups (Bloome, 1981), and that is intrinsically embedded in the culture of its users (Heath, 1980). Many examples could be given to demonstrate that the social nature of the reading process is especially potent during the earliest stages of its acquisition” (p. 163). Certainly for Deaf children the social component of language acquisition is significant to this investigation in addition to the visual nature of the language as compared to the oral/aural nature of spoken language.
From a Vygotskian perspective, social interaction provides the motivating force for developing language and literacy skills, as children receive learning opportunities within the realm of his/her potential. Social Discourse builds upon previous knowledge and as children become more skilled with language mediated by more competent peers and adults, they move toward decontextualized thinking (Wertsch, 1985). Moving toward decontextualized thinking contribute to children’s eventual acquisition of literacy.

At issue is not the letter-sound relationship in early literacy development but how information is mediated between children, their peers and adults. We must then consider the implications for our Deaf children. Because most Deaf children are born into an environment where communication and language is not readily accessible, it is hardly surprising that they experience significant delays when it comes to literacy development.

Kuntze (1998) also discusses the critical importance of meaningful social interaction between children and those around them. The word “meaningful” is a key concept here. How meaningful is fragmented interaction between a Deaf child and adults? How meaningful is fragmented interaction between a Deaf child and adults within her community who can only use a few spoken or signed words or point to objects? And finally, how decontextualized can this type of communication ever become? Considering what we know about the importance of communication in literacy development, we must begin thinking about the true repercussions that a lack of readily accessible and meaningful communication has for a Deaf child.

Literacy equates power, access to education, and oftentimes financial gain. The implications of low levels of communication in relation to literacy development that a
Deaf child may experience in the early years of her life are staggering. Deaf children have all the same inherent strengths, abilities, and hopes and dreams as hearing children and thus developing literacy is something that they can and must do. Indeed to ensure that every child has literacy and communication and language. And then, of course, do everything we can to provide Deaf children, their families and their communities with the support they need for the development of both. Then, and perhaps only then, will we put an end to the 3rd–4th grade reading statistic.
APPENDIX A: SITE AUTHORIZATION LETTER

Site Authorization Letter

February 1, 2007

Dear Ms. Herbold,

I have reviewed your request regarding your study and am pleased to support your research project entitled “Emergent Literacy Development: Case Studies of Four Deaf ASL-English Bilinguals.” Your request to use [name omitted] as a research site is granted. The research will include teacher and student interviews, filming of student activities and collection of student work artifacts. This authorization covers the time period of February 1, 2007-March 1, 2008. We look forward to working with you.

Sincerely,
APPENDIX B: PARENT CONSENT

PARENT INFORMED CONSENT

Emergent Literacy Development: Case Studies of Four Deaf ASL-English Bilinguals

Introduction

You are being invited to take part in a research study. The information in this form is provided to help you decide whether or not to take part. Study personnel will be available to answer your questions and provide additional information. If you decide to take part in the study, you will be asked to sign this consent form. A copy of this form will be given to you.

What is the purpose of this research study?

The principal investigator is studying literacy development in young Deaf children between the ages of 2-4 who have experienced language from birth. This study will consist of in-depth case studies of four young children in order to gain insight about their emergent literacy behavior. The principal investigator is seeking patterns within and across age groups in order to answer the following research questions:

How do young Deaf children ages 2 – 5 who use ASL from birth develop literacy in home and school settings over a one year period?
- How do young Deaf children ages 2-5 demonstrate literacy development in their written work?
- How do young Deaf children ages 2-5 demonstrate their literacy development as they respond to books and other written material as they read?
- What role does phonological awareness play in the written language development of young Deaf children ages 2-5?
- What role does ASL play in the literacy development of young Deaf children ages 2-5?

Why are you being asked to participate?

You are being invited because parent of an informant, it is possible that you possess information about your student’s literacy development that cannot otherwise be observed.

How many people will be asked to participate in this study?

Approximately 17 persons will be asked to participate in this study.

What will happen during this study?

The principal investigator will be conducting an initial interview that will take about 1-2 hours of your time at the beginning of the study (February 2007).

The principal investigator will ask that you store any significant literacy-related artifacts developed by your child for me to take digital pictures of. Those items will be returned promptly.

The principal investigator will be conducting ongoing interviews with you for about 30 minutes, every six to eight weeks until the end of the study (March 2008).

How long will I be in this study?

About 12 months will be needed to complete this study.

Are there any risks to me?

The things that you will be doing have a minimal risk of breach of confidentiality given the limited number of participants. Although we have tried to avoid risks, you may feel that some questions we ask will be
stressful or upsetting. If this occurs you can stop participating immediately. We can give you information about individuals who may be able to help you with these problems.

**Are there any benefits to me?**
You will not receive any benefit from taking part in this study. However, society may benefit from the information and results gathered during the study.

**Will there be any costs to me?**
Aside from your time, there are no costs to you to take part in the study.

**Will I be paid to participate in the study?**
You will be paid no compensation for your participation.

**Will video or audio recordings be made of me during the study?**
There may be some video recording during the study so that we can be certain that your responses are recorded accurately only if you check the box below:

- [ ] I give my permission for audio/video recordings to be made of me during my participation in this research study.

**Will the information that is obtained from me be kept confidential?**
The only persons who will know that you participated in this study will be the research team member: **Principal Investigator: Jennifer Herbold.**

Your records will be confidential. You will not be identified in any reports or publications resulting from the study. It is possible that representatives of the Federal Government or some other group that supports the research study such as the Human Subjects Protection Program will want to come to the University of Arizona to review your information. If that occurs, a copy of the information may be provided to them but your name will be removed before the information is released.

**May I change my mind about participating?**
Your participation in this study is voluntary. You may decide to not begin or to stop the study at any time. Your refusing to participate will have no effect on your employment. You can discontinue your participation with no effect on your employment. Also any new information discovered about the research will be provided to you. This information could affect your willingness to continue your participation.

**Whom can I contact for additional information?**
You can obtain further information about the research or voice concerns or complaints about the research by calling the Principal Investigator Jennifer Herbold Ph.D. Candidate at (505) 476-6379. If you have questions concerning your rights as a research participant, have general questions, concerns or complaints or would like to give input about the research and can’t reach the research team, or want to talk to someone other than the research team, you may call the University of Arizona Human Subjects Protection Program office at (520) 626-6721. (If out of state use the toll-free number 1-866-278-1455.) If you would like to contact the Human Subjects Protection Program by email, please use the following email address http://www.irb.arizona.edu/suggestions.php.

**Your Signature**
By signing this form, I affirm that I have read the information contained in the form, that the study has been explained to me, that my questions have been answered and that I agree to take part in this study. I do not give up any of my legal rights by signing this form.

__________________________________
Name (Printed)
Statement by person obtaining consent
I certify that I have explained the research study to the person who has agreed to participate, and that he or she has been informed of the purpose, the procedures, the possible risks and potential benefits associated with participation in this study. Any questions raised have been answered to the participant’s satisfaction.

Name of study personnel

Study personnel signature

Date signed
APPENDIX C: MINOR CONSENT

PARENT/LEGAL GUARDIAN CONSENT FORM

Emergent Literacy Development: Case Studies of Four Deaf ASL-English Bilinguals

You are being asked to read the following material to ensure that you are informed of the nature of this research study and of how your child will participate in it, if you consent for him/her to do so. Signing this form will indicate that you have been so informed and that you give your consent. Federal regulations require written informed consent prior to participation in this research study so that you can know the nature and risks of your child’s participation and can allow him/her to participate or not participate in a free and informed manner.

PURPOSE

Your child is being invited to participate voluntarily in the above-titled research project. The purpose of this project is to study literacy development in young Deaf children between the ages of 2-4 who have experienced language from birth. This study will consist of in-depth case studies of four young children in order to gain insight about their emergent literacy behavior. I am seeking patterns within and across age groups in order to answer the following research questions:

- How do young Deaf children ages 2 – 5 who use ASL from birth develop literacy in home and school settings over a one year period?
- How do young Deaf children ages 2-5 demonstrate literacy development in their written work?
- How do young Deaf children ages 2-5 demonstrate their literacy development as they respond to books and other written material as they read?
- What role does phonological awareness play in the written language development of young Deaf children ages 2-5?
- What role does ASL play in the literacy development of young Deaf children ages 2-5?

SELECTION CRITERIA

The Principal Investigator or a member of his/her study staff will discuss the requirements for participation in this study with you. To be eligible to participate, your child is between 2 and 5 years of age. A total of 5 individuals will be enrolled in this study locally.

PROCEDURE(S)

1. There will be an initial interview with your child that will take place for about fifteen minutes at the beginning of the study (February 2007).
2. The principal investigator will conduct an initial interview with your child’s parents and teachers at the beginning of the study (February 2007).
3. Your child will be observed in his/her classroom setting at least once a week for approximately 30 minutes to one hour a week each time from February 2007-March 2008.
4. The principal investigator will interview your child and his/her teachers during these observations about the activities that the child is engaged in.
5. At the beginning, middle and end of the study, your child may be asked to perform some written tasks as part of his/her classroom instruction specifically designed to collect information about his/her writing.
6. Throughout the year, the principal investigator will collect, photograph, and return child work artifacts related to his/her literacy development.
7. Throughout the year, the principal investigator will collect literacy assessments conducted by the teacher specifically related to your child’s literacy development.
Risks
There is a minimal risk of breach of confidentiality due to the small number of children involved in the study.

Benefits
There is no direct benefit to your child from his/her participation.

Confidentiality
Given the nature of the written work of children ages 2-5, it may not be possible to avoid using the children’s first names in this study. Steps will be taken to ensure that your child’s identity remains confidential. Your child’s last name will not be shared with anyone. The teachers, parents and principal investigator will discuss your child’s academic and literacy progress as part of the study. The principal investigator will not discuss your child with other informants.

Participation Costs and Subject Compensation
There is no cost to you or your child for participating except for the time. Neither you nor your child will be compensated for your child’s participation.

Contacts
You can obtain further information about the research or voice concerns or complaints about the research by calling the Principal Investigator Jennifer Herbold, Ph.D. Candidate, etc. at (505) 476-6379. If you have questions concerning your rights as a research participant, have general questions, concerns or complaints or would like to give input about the research and can’t reach the research team, or want to talk to someone other than the research team, you may call the University of Arizona Human Subjects Protection Program office at (520) 626-6721. (If out of state use the toll-free number 1-866-278-1455.) If you would like to contact the Human Subjects Protection Program by email, please use the following website: http://www.irb.arizona.edu/suggestions.php.

Liability
Side effects or harm are possible in any research program despite the use of high standards of care and could occur through no fault of your child or the investigator involved. Known side effects have been described in this consent form. However, unforeseeable harm also may occur and require care. You do not give up any of your or your child’s legal rights by signing this form. In the event that your child requires or you are billed for medical care that you feel has been caused by the research, you should contact the principal investigator Jennifer Herbold, Ph.D. Candidate at (505)476-6379.

Authorization
Before giving my consent by signing this form, the methods, inconveniences, risks, and benefits have been explained to me and my questions have been answered. I may ask questions at any time and I am free to withdraw my child from the project at any time without causing bad feelings or affecting his/her medical care. My child’s participation in this project may be ended by the investigator or by the sponsor for reasons that would be explained. New information developed during the course of this study which may affect either my willingness or that of my child to continue in this research project will be given to me as it becomes available. This consent form will be filed in an area designated by the Human Subjects Committee with access restricted by the principal investigator, Jennifer Herbold, PhD Candidate. I do not give up any of my or my child’s legal rights by signing this form. A copy of this signed consent form will be given to me.

___________________________________  ______________________________
Subject's Name (printed)                      Parent/Legal Guardian’s Signature   Date
INVESTIGATOR'S AFFIDAVIT:
Either I have or my agent has carefully explained to the parent/legal guardian of the subject the nature of the above project. I hereby certify that to the best of my knowledge the person who signed this consent form was informed of the nature, demands, benefits, and risks involved in his/her child’s participation.

Signature of Presenter
Date

Signature of Investigator
Date
Introduction
You are being invited to take part in a research study. The information in this form is provided to help you decide whether or not to take part. Study personnel will be available to answer your questions and provide additional information. If you decide to take part in the study, you will be asked to sign this consent form. A copy of this form will be given to you.

What is the purpose of this research study?
The principal investigator is studying literacy development in young Deaf children between the ages of 2-4 who have experienced language from birth. This study will consist of in-depth case studies of four young children in order to gain insight about their emergent literacy behavior. The principal investigator is seeking patterns within and across age groups in order to answer the following research questions:

How do young Deaf children ages 2 – 5 who use ASL from birth develop literacy in home and school settings over a one year period?
- How do young Deaf children ages 2-5 demonstrate literacy development in their written work?
- How do young Deaf children ages 2-5 demonstrate their literacy development as they respond to books and other written material as they read?
- What role does phonological awareness play in the written language development of young Deaf children ages 2-5?
- What role does ASL play in the literacy development of young Deaf children ages 2-5?

Why are you being asked to participate?
You are being invited because as a teacher for an informant, it is possible that you possess information about your student’s literacy development that cannot otherwise be observed.

How many people will be asked to participate in this study?
Approximately 17 persons will be asked to participate in this study.

What will happen during this study?
The principal investigator will be conducting an initial interview that will take about 1-2 hours of your time at the beginning of the study (February 2007).

The principal investigator will be observing your classroom and videotaping literacy-related events for about thirty minutes to one hour every week.

The principal investigator will ask that you store any significant literacy-related artifacts developed by the minor informant for me to take digital pictures of. Those items will be returned to the classroom promptly.

The principal investigator will be conducting ongoing interviews with you for about 30 minutes, every six to eight weeks until the end of the study (March 2008).

How long will I be in this study?
About 12 months will be needed to complete this study.

Are there any risks to me?
The things that you will be doing have a minimal risk of breach of confidentiality given the limited number of participants. Although we have tried to avoid risks, you may feel that some questions we ask will be stressful or upsetting. If this occurs you can stop participating immediately. We can give you information about individuals who may be able to help you with these problems.

**Are there any benefits to me?**
You will not receive any benefit from taking part in this study. However, society may benefit from the information and results gathered during the study.

**Will there be any costs to me?**
Aside from your time, there are no costs to you to take part in the study.

**Will I be paid to participate in the study?**
As part of the agreement with the school, you will be participating in the study during your work hours. You will not be paid extra compensation for your participation.

**Will video or audio recordings be made of me during the study?**
We may make video recordings during the study so that we can be certain that your responses are recorded accurately only if you check the box below:

I give my permission for video recordings to be made of me during my participation in this research study.

**Will the information that is obtained from me be kept confidential?**
The only persons who will know that you participated in this study will be the research team member: **Principal Investigator: Jennifer Herbold.** The parents of the minor informants and the school administration will also be made aware of your participation in this study.

Your records will be confidential. You will not be identified in any reports or publications resulting from the study. It is possible that representatives of the Federal Government or some other group that supports the research study such as the Human Subjects Protection Program will want to come to the University of Arizona to review your information. If that occurs, a copy of the information may be provided to them but your name will be removed before the information is released.

**May I change my mind about participating?**
Your participation in this study is voluntary. You may decide to not begin or to stop the study at any time. Your refusing to participate will have no effect on your employment. You can discontinue your participation with no effect on your employment. Also any new information discovered about the research will be provided to you. This information could affect your willingness to continue your participation.

**Whom can I contact for additional information?**
You can obtain further information about the research or voice concerns or complaints about the research by calling the Principal Investigator Jennifer Herbold Ph.D. Candidate at (505) 476-6379. If you have questions concerning your rights as a research participant, have general questions, concerns or complaints or would like to give input about the research and can’t reach the research team, or want to talk to someone other than the research team, you may call the University of Arizona Human Subjects Protection Program office at (520) 626-6721. (If out of state use the toll-free number 1-866-278-1455.) If you would like to contact the Human Subjects Protection Program by email, please use the following email address http://www.irb.arizona.edu/suggestions.php.
Your Signature

By signing this form, I affirm that I have read the information contained in the form, that the study has been explained to me, that my questions have been answered and that I agree to take part in this study. I do not give up any of my legal rights by signing this form.

__________________________________   __________________________
Name (Printed)                           Participant’s Signature      Date signed

Statement by person obtaining consent
I certify that I have explained the research study to the person who has agreed to participate, and that he or she has been informed of the purpose, the procedures, the possible risks and potential benefits associated with participation in this study. Any questions raised have been answered to the participant’s satisfaction.

__________________________________
Jennifer D. Herbold

__________________________________
Study personnel Signature             Date signed
APPENDIX E: PARENT INTERVIEW QUESTION SAMPLES

Initial:
Background:
1. Describe your family.
2. How was child X born Deaf?
3. What is a typical day for your family?
4. Describe your child’s schooling experiences.

Literacy:
1. How did you learn to read and write?
2. How do you think your child will learn to read and write?
3. What is your definition of literacy?
4. When do you believe a person is considered fully literate?
5. Do you think your child’s Deafness will have an impact on his/her literacy development?
   a. In what ways do you believe his/her Deafness will have an impact on his/her literacy development?
6. When did your child begin to read and write?
7. When does your child read and write?
8. Does your child like to read and write?
9. Have you noticed any reading and writing milestones?
   a. What are they?
10. What do you do to promote your child’s reading and writing development?
11. If applicable: What are your concerns about your child’s literacy development?

Ongoing:
1. In the past few weeks, what have you noticed about your child’s general academic development?
2. In the past few weeks, what have you noticed about your child’s social development?
3. In the past few weeks, what have you noticed about your child’s literacy development?
4. Have you done anything directly related to literacy development at home? If so, describe them.
5. Is there anything you have observed that you would like to share and discuss

Ongoing questions also include questions related to specific observations of literacy events at home.
APPENDIX F: TEACHER INTERVIEW QUESTION SAMPLES

*Initial*

**Background:**
1. Describe your educational background.
2. Describe your beliefs about teaching in general.
3. What is a typical day in your classroom?

**Literacy:**
1. How did you learn to read and write?
2. How do you think your students will learn to read and write?
3. What is your definition of literacy?
4. When do you believe a person is considered fully literate?
5. Do you think your student’s Deafness will have an impact on his/her literacy development?
   a. In what ways do you believe his/her Deafness will have an impact on his/her literacy development?
6. When do children begin to learn to read and write?
7. What strategies do you use for literacy instruction?

**Child Specific:**
1. Have you noticed any reading and writing milestones in *child x*?
   a. What are they?
2. What assessments have you done on *child x*’s literacy abilities?
   a. What do these assessments show?
3. What are *child x*’s literacy strengths and needs?
4. Do you do anything different to promote *child x*’s reading and writing development?
   a. If applicable: What are your concerns about *child x*’s literacy development?

*Ongoing*
1. In the past few weeks, what have you noticed about your student’s general academic development?
2. In the past few weeks, what have you noticed about your student’s social development?
3. In the past few weeks, what have you noticed about your student’s literacy development?
4. What are your students currently learning in class?
5. Is there anything you have observed that you would like to share and discuss?

*Ongoing questions also include questions related to specific observations of literacy events in the classroom.*
APPENDIX G: CHILD INTERVIEW QUESTION SAMPLES

Older children (4-5 Year Olds):

1. Reading
   a. Do you like to read?
   b. What do you like to read?
      i. Why do you like (what the child selects)?
   c. Who reads to you?
      i. Do you like it when someone reads to you?
   d. Who is a good reader?
      i. Why do you think (child selected person) is a good reader?
   e. If you don’t know what a story is about, what do you do?
   f. What are those? (point to text).
   g. How do you learn to read?

2. Writing
   a. Do you like to write?
   b. What do you like to write?
      i. Why do you like writing about (what the child selects)?
   c. Who do you write to/for?
   d. Who is a good writer?
      i. Why do you think (child selected person) is a good writer?
   e. If you don’t know how to write a word, what do you do?
   f. How do you learn to write?

Reading Observation Questions:

1. What are you reading?
2. Do you like the book?
3. Do you want to read to me?

Writing Observation Questions:

1. What did you just draw?
2. What does this say (point to text that student wrote)?
3. Who is this for?

Younger children (2-3 year olds):

Reading:

1. What is that? (point to book)
2. What is that? (point to items in book)
3. What is that? (point to letters)
4. What book do you like?
5. Read to me.

Writing:

1. What is that? (point to drawing or writing)

Ongoing questions also include questions related to specific observations of literacy events in the classroom and at home.

The 4-5 year old child interview question samples contains questions modified from the Retrospective Miscue Inventory (Goodman & Marek, 1996).
## APPENDIX H: EARLY LITERACY CHECKLIST

**Student Name:**

**Date:**

**School:**

**Evaluator:**

**Year:**

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<th>Interest in Reading</th>
<th>1&lt;sup&gt;st&lt;/sup&gt;</th>
<th>2&lt;sup&gt;nd&lt;/sup&gt;</th>
<th>3&lt;sup&gt;rd&lt;/sup&gt;</th>
<th>4&lt;sup&gt;th&lt;/sup&gt;</th>
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<td>Voluntarily looks at or tries to read books</td>
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<td>Indicates a desire to be read to</td>
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<td>Knows books by their name</td>
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<td>Examines pictures when being read to</td>
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<tr>
<td>Responds with questions or comments to stories</td>
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<td>Enjoys taking books home to reread</td>
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<td>Reads or requests to be read to at home</td>
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<tr>
<td>Fills in words as adults reads</td>
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<tr>
<th>Concepts about Books</th>
<th>1&lt;sup&gt;st&lt;/sup&gt;</th>
<th>2&lt;sup&gt;nd&lt;/sup&gt;</th>
<th>3&lt;sup&gt;rd&lt;/sup&gt;</th>
<th>4&lt;sup&gt;th&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opens a book to look at it</td>
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<tr>
<td>Rights a book which is upside down</td>
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<tr>
<td>Turns pages left to right</td>
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<tr>
<td>Reading is related to pictures not text</td>
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<tr>
<td>Identifies the front, back, top and bottom of a book</td>
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<tr>
<td>Indicates the difference between words and pictures</td>
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<tr>
<td>Associates a word with it’s picture</td>
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<tr>
<td>Indicates that it is the text that is read</td>
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<tr>
<td>Knows what a title is</td>
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<tr>
<td>Knows what an author is</td>
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<tr>
<td>Reads the left page before the right</td>
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<tr>
<td>Indicates first word in sentence in the starting place for reading</td>
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<tr>
<td>Indicates print is read from left to right</td>
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<tr>
<td>Recognizes environmental print in context</td>
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<tr>
<td>Differentiates letters from words</td>
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<tr>
<td>Knows what a letter is and can identify one</td>
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<tr>
<td>Knows what a work is and can identify one</td>
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<tr>
<td>Indicates that there are spaces between words</td>
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<tr>
<td>Identifies environmental print out of context</td>
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<tr>
<td>Can identify most uppercase letters</td>
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<tr>
<td>Can identify most lowercase letters</td>
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</table>
APPENDIX H: EARLY LITERACY CHECKLIST – CONTINUED

Word Reading Abilities
Pretend reading is governed by pictures; story not formed
Uses memory to read text
Attempts reading by attending to picture clues and print; uses memory and pictures to read text
Demonstrates ASL to text correspondence by pointing to words when reading
Uses context, syntax and semantics to help identify words in the text
Identifies words out of text
Recognizes some words by sight
Identifies environmental print out of context
Can identify most uppercase letters
Can identify most lowercase letters

Comprehension of Symbols and Texts
Understands pictures have names and represent real objects
Comments about pictures though the story is not yet formed
Retells stories through dramatization and props; simple story line formed
Understands that pictures represent characters and actions
Able to retell stories, written language-like form
Can explain connections between pictures and text
Can recall major points in text. Story retellings may include characters, setting, theme, resolution
Asks questions or makes comments in response to text after reading:
  Literal comments or questions
  Interpretive comments or questions
  Critical comments or questions
Can provide information from text to support ideas
Can provide main idea and supporting details
Can make and confirm predictions about text
Can draw inferences conclusions or generalizations about text.
# APPENDIX H: EARLY LITERACY CHECKLIST – CONTINUED

<table>
<thead>
<tr>
<th>Writing Development</th>
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<tbody>
<tr>
<td>Relies primarily on pictures to convey meaning</td>
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<tr>
<td>Makes marks on paper to imitate adult writing</td>
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<tr>
<td>Labels drawings and writing attempts (dots, circles, wavy lines)</td>
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<tr>
<td>Protowriting to intentionally convey a message</td>
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<tr>
<td>Scribble-like letters or letter-like forms for writing</td>
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<tr>
<td>Letter strings to represent words</td>
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<tr>
<td>Adds labels or words to picture drawings</td>
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<tr>
<td>Differentiates between writing and drawing</td>
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<tr>
<td>Talks about own writing attempts</td>
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<tr>
<td>Writes name and familiar words</td>
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<tr>
<td>Uses pictures and print to convey meaning</td>
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<tr>
<td>Attempts to read own writing</td>
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<tr>
<td>Takes risks with writing</td>
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<tr>
<td>Printing is from left to right, top to bottom</td>
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<tr>
<td>Uses upper and lower case letters</td>
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<tr>
<td>Uses spaces between words</td>
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<tr>
<td>Prints or types to inventively spell</td>
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<tr>
<td>Uses initial consonant to make words (initial consonant level)</td>
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<tr>
<td>Writes single words from memory</td>
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<tr>
<td>Writes noun verb phrases</td>
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<tr>
<td>Writes short sentences to convey an idea</td>
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<td>Begins to use capitals and punctuation</td>
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<tr>
<td>Uses more conventional spellings</td>
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<tr>
<td>Uses descriptive words</td>
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<tr>
<td>Can write a topic sentence and supporting sentences</td>
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<tr>
<td>Revises to add more description and detail</td>
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<tr>
<td>Spells many common words correctly</td>
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<td>Beginning to organize ideas in a logical sequence</td>
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<tr>
<td>Uses strategies to spell difficult words</td>
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<tr>
<td>Using more complex sentence structures</td>
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</table>
APPENDIX I: WRITING TASK PROCEDURES

1. Each child will be given an unlined 8x11 sheet of blank paper.
2. The children will be asked to write the following using different colored markers on paper:
   a. His/her name, and the names of two other significant individuals in their lives (e.g., mom and dad)
   b. Two basic high frequency words in English that are not initialized in ASL (ball and baby)
   c. Two basic high frequency words in English that are initialized in ASL (water and cookie)
   d. Two basic high frequency words in English that are lexicalized signs in ASL (#BUS and #ICE)
3. The children will be asked about their interpretations of their writings. Depending upon what is actually written, the researcher will ask the children about specific parts of their writing.

(Modified from Ferreiro and Teberosky’s (1982) writing tasks procedures)
REFERENCES


Childrens’ Books Referenced


