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A MULTI-GENERATIONAL DEAF FAMILY: A CASE STUDY ON LITERACY

A Masters Thesis

Presented to

The Graduate College of

Missouri State University

In Partial Fulfillment

Of the Requirements for the Degree

Master of Science, Communication Science and Disorders

By

Rubecca Wilson

May 2017

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A MULTI-GENERATIONAL DEAF FAMILY: A CASE STUDY ON LITERACY

Communication Sciences and Disorders

Missouri State University, May 2017

Master of Science

Rubecca Wilson

ABSTRACT

Literacy is a crucial component of life in our society, and the journey to becoming fluent readers begins before conventional classroom instruction. Literacy rates of adults who are deaf and hard of hearing are consistently in the fourth grade, age nine to ten years, range. In order to help build more skilled readers who are deaf and hard of hearing, it is critical to increase understanding of how deafness affects the development of literacy. This case study was of a family of six with all members' deaf and American Sign Language (ASL) as their first language. The purpose of this study was to explore the role of family within the home context as it related to the literacy development of the children. Study findings suggested that absence of print and infrequent reading from parent to child influenced the early literacy outcomes of the children. Implications for this study include an increase in awareness or understanding of the effect on early literacy of American Sign Language use in the home. The benefit for this study may be that future inquiry based on this case study may lead to better practices in working with families whose first language is ASL.

KEYWORDS: Deaf, American Sign Language, literacy, reading, early literacy, language development.

This abstract is approved as to form and content

Karen Engler, EdD
Chairperson, Advisory Committee
Missouri State University

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Approved:

Karen S. Engler, EdD

Christopher Craig, EdD

Tara Oetting, MS

Julie Masterson, PhD: Dean, Graduate College

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I dedicate this thesis to my husband and children. Andy, this thesis is not mine alone. You have been through this process with me, listening, advising, reading, and encouraging, every step of the way. Genesis, Sage, and Elliott, my hope is that you see the passion that lies behind this thesis, and you pursue life with equal fervor.

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INTRODUCTION

Reading is an essential component of everyday life. Literacy, or the ability to read, is a skill that begins developing early in life (Gullo, 2013), and literacy is one of 8 abilities that are required for full participation in today's world (Stancel- Piątak, 2013,). Literacy plays a vital role in activities such as navigating directions, shopping for food, applying for a job, and various other situations. Even social interactions and participation in civic activities are increasingly dependent on written communication, particularly through the use of the internet (Stancel- Piątak, 2013). It is apparent that possession of competent literacy skills is imperative for functioning at an optimum capacity in our world today.

Despite the fact that education is a fundamental human right (Stancel- Piątak, 2013), and literacy is a foundational component of education, research reveals a disparity in literacy competency for students, without regard to where they live (Stancel- Piątak, 2013). Residence in a first world country does not guarantee that a student will possess literacy skills (Stancel- Piątak, 2013). Perhaps one of the most staggering of literacy statistics is the recurrent statement that “half of all high school graduates with hearing loss read below the fourth grade level” (DeLana, Gentry, & Andrews, 2007, p. 73). Multiple research studies and publications echo this figure (Trezek, 2010; Trezek, 2015; Mayer, 2007; Wang, 2008). It is evident that, at some level, hearing loss hinders literacy development (DeLana et al, 2007). Because of the crucial need for literacy and the continuous lack of literacy skills within the population of individuals who are d/Deaf or

hard of hearing, research into the literacy process and what negatively impacts or hinders literacy for these individuals must be a priority (Stobbard & Alant, 2007).

Within the population of those with a hearing loss, several distinctions must be made. The classification, deaf, signified by the lowercase “d” is defined as medical deafness. Those who label themselves as medically deaf commonly use spoken or manually coded signed English as their communication mode. Despite this use, their comprehension of English may be limited (Zazove, Meador, Reed & Gorenflo, 2013). An individual who is deaf will refer to themselves as “deaf, deafened, hard of hearing, or hearing impaired” (Fileccia, 2011, p. 175). Person-first language is typically used with this population.

Conversely, Deaf, signified by the uppercase “D” is defined as cultural Deafness. Those individuals who identify themselves as culturally Deaf are involved in the larger Deaf community. This is a minority collective of people who possess their own values, priorities, and social expectations. This group uses American Sign Language (ASL), as their primary, and often only mode of communication. Communication with non-signing people or groups requires the use of an interpreter (Zazove et al, 2013). Inclusion in and identification with the Deaf community usually indicates a profound hearing loss, no use of amplification, and the use of ASL as a primary communication modality (Fileccia, 2011).

Deaf individuals do not see their Deafness as a disability. “Deaf people do not define their inability to hear as a pathological problem that necessitates medical or nursing intervention. Rather than an audiological deficit, Deafness is a distinct identity. Deaf people consider themselves proud members of a diverse Deaf community stemming

from their rich and culturally Deaf heritage” (Fileccia, 2011, p. 174). Their Deafness allows them to actively participate in Deaf culture (Fileccia, 2011). Within the Deaf community, as in other minority communities, there is a richness of history, art, customary behaviors, valued traits and experiences, folklore, and organizations. One way the Deaf community propagates its legacy is through residential Deaf schools. In Deaf schools, traditions are passed from Deaf adults, teachers, and models to the next generation of the Deaf community (Fileccia, 2011). These schools are a source of pride for the Deaf community. It is here that stories, language, and tradition are passed on.

American Sign Language is the language of the Deaf. ASL is not simply signed English (Zazove et al, 2013). It is its own language with its own structure and rules. These traits manifest in facial expression and body language, and lend complexity, depth, and meaning to communication (Fileccia, 2011). ASL also possesses its own idiomatic expressions, and has no written form of expression (Zazove et al, 2013; Fileccia, 2011).

ASL has been studied and analyzed, and has been classified as its own fully developed language, recognized as the language of the American Deaf community (Reagan, 2011). ASL is the fourth most commonly used language in the United States and Canada (Reagan, 2011). The recognition of American Sign Language as a foreign language that has no written form, the position of ASL as the native language for Deaf persons, and the implications of ASL as a first language on reading proficiency equate to a significant impact on literacy for this population. The research on specific implications of ASL as a first language on literacy, however, is scarce.

The literature has shown that family involvement in promoting literacy is key to development of emergent literacy. The United States Department of Education reports

that the single best predictor of future success in reading is the extent to which children are read to when they are very young (Federal survey, 1996). Thus, it is important to understand the implications of variables such as American Sign Language as a first language, in combination with family involvement, and that impact on overall literacy development of this population.

The purpose of this study is to investigate the manner in which families who have more than one child who is Deaf and where American Sign Language is the first language play a role in each child's literacy development. The study will explore the individual differences among children within a family that may also contribute to the literacy development in the home context. The benefit for this study may be that future inquiry based on this case study may lead to better practices in working with families whose first language is ASL. Specific research questions included the following:

1. In what ways does family involvement in the literacy process differ when the child is Deaf and American Sign Language is the first language, compared with the literacy process with a hearing child who uses spoken language?
2. What are the factors that impact family involvement in the literacy process when a child is Deaf and American Sign Language is the first language?
3. What is the measure of language and vocabulary, which is an indicator of future literacy competency, for each of the culturally Deaf individuals whose first language is American Sign Language living in a home with culturally Deaf parents and siblings?

REVIEW OF THE LITERATURE

Literacy is a complicated goal that begins early in life and progresses through many stages (Gullo, 2013). For readers who are d/Deaf and hard of hearing, this progression is similar to hearing peers in some ways, but vastly different in some ways (Trezek, 2010). These similarities and differences give us insight into how literacy develops with a student who is d/Deaf or hard of hearing. Understanding these similarities and differences may help with the development of a broader base of knowledge related to reading and those who are d/Deaf and hard of hearing.

The Importance of Literacy

Competent possession of a first language and skills in early literacy are known to predict success in future education (Gullo, 2013). Reading proficiency of a student who is in third grade can, within reasonable measure, predict whether that student will graduate high school (Gullo, 2013). It is the skills in literacy that are attained earliest that serve as building blocks for success in the later stages of education. Early literacy skills aid in avoiding difficulties in learning, language delays, and lend to educational potential (Stancel- Piatak, 2013).

It is during the earliest time of a child's life that the foundations for literacy and future academic success are laid (Hume, Lonigan & McQueen, 2015). Language and early literacy has been shown to contribute to educational success (Gullo, 2013). The earliest years of literacy development, when a child is in their home and when they are

beginning their formal education, are crucial for setting the child up to succeed in literacy and academics for their entire academic career, and later for their professional careers.

Literacy and Deaf Readers

There is a particular concern with the development of literacy among the population of students who are d/Deaf and hard of hearing. It is well established that a majority of readers who are d/Deaf and hard of hearing fall within the third to fourth grade reading proficiency range (Trezek, 2010, Delana et al, 2007, Mayer, 2007, Wang, Kretschmer, & Hartman, 2008). Trezek (2010) asserts that “average 18 to 19 year old students with severe to profound hearing impairment are reading no better than average 9 to 10 year old hearing students.” Research also denotes that students who are d/Deaf and hard of hearing tend to progress through the stages of literacy more slowly than their hearing age-mates, and their growth often stagnates at the third/fourth grade level (Trezek, 2010). Not only do readers who are d/Deaf and hard of hearing struggle to achieve higher level reading skills, but the process of becoming literate, from early literacy to fluent reader, is more slow than for their hearing counterparts.

These statistics have significant impact because it is at this educational juncture, third to fourth grade, that students shift from learning to read, and begin to use reading as the primary modicum for learning. Our educational system assumes that a student in third grade is a proficient reader (Gullo, 2013). It is at this educational period, however, when the trajectories of the learners who are d/Deaf and hard of hearing begin to separate from the trajectories of their hearing peers (Trezek & Mayer, 2015, Mayer, 2007). In spite of research that asserts that literacy progression is the same whether a student is d/Deaf or

hearing, no change in the statistics regarding reading and writing competency has taken place in more than 20 years (Mayer, 2007).

This stagnation in the development of literacy affects not only the academic life of these individuals, but it affects various other aspects of their lives. The lack of proficiency in reading and writing impacts more than just educational achievement. It also impacts personal development, social opportunities, and cultural participation (Stobbart & Alant, 2007). Having or lacking the ability to read impacts the capability to shop in a grocery store, review a menu at a restaurant, apply for a job, follow directions using street signs, follow a recipe, and numerous similar situations. Despite the crucial need to be able to read, “30% [of students who are deaf] leave school functionally illiterate” (Mayer, 2007, p. 412). This statistic is staggering when viewed with the knowledge of how importance literacy truly is and how profound its impact on all aspects of life can be.

Stages of Literacy in Children Who are Hearing

Literacy, or the ability to read and write, can be described as a progression of stages or levels. In the earliest stages, a reader will label items seen in a book. Next, they will create stories related to those representations. Later, the stories will relate to more than what is shown in the pictures. The final level is reading books independently, with the ability to comprehend the meaning of the story read (Rottenberg, 2001). Beginning levels are basic and relate to pictorial representations of concrete objects. Advanced levels become more complex and abstract. Reading skills constantly build on what was

previously learned. Understanding what has been read is dependent on possession of language skills (Trezek, 2015).

Chall's stage theory separates and defines stages that align with this progression of reading development (Trezek, 2010, Indrisano & Chall, 1995). This description of each stage and its accompanying milestones assumes that all conditions of development are normal. Chall's model illustrates the literacy process as it establishes skills and then builds on those skills, with the highest achievement being fluent reading and comprehension of the most complex texts (Steinman, LeJeune, & Kimbrough, 2006).

Chall's Stage 0 is labeled as pre-reading or reading readiness. Children who fall in this stage are generally in the age range of six months to six years (Trezek, 2010). It is important at this stage that the child be exposed to print in many different forms. Children are dependent on the adults they interact with to expose them to print. This can be in the form of storybook reading, print on a television or computer, print on art on the walls, the presence of print in forms such as a newspaper, and exposure to print in the environment outside of the home. The interactions that the child has with print are important components in pre-literacy (Dooley, 2010). Through these print experiences, children begin to understand the purpose of text, what can be conveyed through text, and general mechanics of reading such as page orientation, reading from left to right, and the relationship between print and language. These fundamentals are the beginning of comprehension (Dooley, 2010). It is during these early interactions that children are exposed to variety in language, learn new vocabulary, and understand the order of language. Additional exposure comes through witnessing conversations, participating in

language games such as singing and rhyming, and “most importantly, by being read to by an adult” (Trezek, 2010, p. 29).

Parents are often the facilitators of these early literacy situations. Personal opinions and prioritization of reading and other literacy interactions bear strong influence on the reading potential and success of the child (Stobbart, 2007). If literacy and reading are daily components in the life of the parent, it will affect the language, literacy, and reading development of the children in the home.

Literacy development in Chall’s Stage 0 is referred to as emergent literacy. Emergent literacy is the collection of foundational skills and early experiences that begin the process of learning how to read (Dooley, 2010). Emergent literacy is comprised of print knowledge, and understanding the connection that printed language has to spoken or signed language. Also included is a general understanding of what print looks like as opposed to what scribbling looks like, how a book is oriented during reading, and knowledge that reading happens from left to right. All of these skills occur before direct literacy instruction in school (Stobbard, 2007).

During Chall’s Stage 0, a child may become familiar with the letters in the alphabet, learn to recognize letters and words that they frequently seen in their environment, and pretend to read stories when looking at the pages of books (Trezek, 2010). They will learn what direction a book should be held in, how to turn pages, and how to mimic reading from left to right (Stobbard, 2007). Acquisition of these building blocks and an atmosphere that fosters growth in these developmental stages are all crucial components of emergent literacy (Stobbard, 2007).

One of the most significant ways that children grow as emergent readers is shared reading. When engaged in shared reading, an adult sits and reads a book with a child. The frequency of this activity has been shown to bear strong influence on the level of interest the child takes in reading, in addition to impacting their language and literacy . (Hume et al, 2015). When engaged in shared reading, children are learning vocabulary, learning page orientation, and learning that reading flows from left to right (Stobbard, 2007). Shared reading is one of many ways in which parents can facilitate their child's literacy growth. A visit to the library, going to group story time, and allowing a child to see an adult enjoying recreational reading also foster this growth (Hume et al, 2015).

The next of Chall's stages is Stage 1. Progression into Stage 1 occurs when a child enters school and their formal education commences (Steinman et al, 2006). Stage 1 is also referred to as initial reading and decoding. Children in this stage are generally six to seven years old, or in first and second grade in school (Trezek, 2010). It is during this stage that children are explicitly taught letters, sounds, and the correspondence of the two (Trezek, 2010). At this time, children will begin to notice patterns in the relationships between letter shape and the sounds that are made. Printed letters, or simple graphemes, and printed words, which are combinations of graphemes, are associated with the sounds they make. These sounds, or phonemes, are combined to form words that the child can blend together to decode new words (Steinman et al, 2006).

While in stage 1, a child will begin to "sound out" words. Children memorize rules about phonemic properties, and apply those rules to material they are reading (Steinman et al, 2006). During this stage, the relationship between spoken word and individual sound, and the relationship between written word and individual letter is

recognized (Trezek, 2010). During stage 1, high-frequency words, also known as sight words, and phonetically regular words are directly taught. These words eventually become reflexively comprehended without the need to sound out each phoneme (Trezek, 2010).

Stage 2, also known as confirmation and fluency, follows stage 1 (Trezek, 2010). This is the first time that fluency arises within the reader (Steinman et al, 2006, Trezek, 2010). Fluency is the ability to read text accurately, quickly, and with expression. Fluent reading mimics speech. Children in this stage are generally seven to eight years old, and in the second and third grade (Trezek, 2010). Exposure to print and time spent reading lends itself to fluency. As a child becomes a fluent reader, they spend less time and cognitive energy unlocking individual words. Despite this proficiency in reading words at sight rather than decoding groups of letters, the child is still reading to understand individual words rather than to understand the complete message of the text (Steinman et al, 2006). A reader in this stage will focus on reading the words accurately and quickly, rather than comprehending the meaning of the passage.

Opportunities to gain experience and practice with reading are important in this stage. Readers need to be exposed to a vast array of print, and allowed to read in varied settings. It remains imperative that readers attempt to read passages that are more advanced than their recreational reading level (Trezek, 2010). This will challenge them with material that is continuously increasing in difficulty.

Stage 3 follows Stage 2, and is also termed reading for learning. This stage is broken into Phase A, which includes grades four through six, and Phase B, which includes grades seven through nine (Trezek, 2010). This stage is where formal education

shifts from teaching children how to read, and begins using reading as the primary tool for learning (Steinman et al, 2006). At this point, the focus of reading shifts from understanding the words, and becomes comprehension of the information that is being conveyed. (Steinman et al, 2006). Whereas children previously spent their energy exhausting efforts with decoding individual words, they are now able to spend their energy deciphering the common meaning linking the words together. Upon entrance into this stage, children are freed from single-word reading. Readers who are in Stage 3 are generally still very young. Because of this, their life experience and maturity are limited. They experience success in reading when they read material that is simple, direct, and has limited technicality (Steinman et al, 2006).

Stage 4, or multiple viewpoints, follows acquisition of stage 3. The age of the reader in Stage 4 will vary greatly (Trezek, 210). As the name implies, arrival at Stage 4 signifies the emerging capability to read a passage from more than just their own perspective. They “begin to build cognitive representations of the world using multiple points of view” (Steinman et al, 2006, p. 43). The purpose of reading in this stage is to understand facts and ideas presented. At the same time, the reader will work to understand these facts and ideas from the viewpoints that they have begun to assemble in their repertoire of knowledge (Trezek, 2010). They will have the skills necessary to understand a shift in perspective, and read for meaning from the world view of differing authors, nations, people groups, and characters.

Stage 4 is the first time that readers must engage prior knowledge in order to understand new information (Steinman et al, 2006). The primary advancement of the reading process in this stage occurs when the reader gains new knowledge, and is able to

relate that knowledge to their own world view and the world view of others, and form a new perspective on the topic based on the combination of these sets of knowledge (Steinman et al, 2006). Readers are reading new material, and then fitting that new material into the already established information structures in their knowledge base. Reading undergoes a qualitative change at this Stage (Steinman et al, 2006).

Also during stage 4, readers first gain the ability to draw conclusions and make predictions. Readers are able to infer conclusions. They do this by combining knowledge from the text they read with their previously acquired knowledge about the subject and their life experience. They use this compilation of information to assess the situation presented, and then infer information about the subject (Steinman et al, 2006). Readers are accessing past information and connecting it with comprehension of what is being read in the present in order to draw conclusions, make predictions, and form opinions. It is a complex interchange that occurs at this stage.

Stage 5 follows Stage 4, and is also known as construction and reconstruction. This stage generally occurs when readers are college age, or engaging in reading at the collegiate level (Trezek, 2010). This Stage is the highest stage, and reading at this stage is the most cognitively demanding. Possession of the skill set in this stage signifies the greatest maturity in a reader (Steinman et al, 2006). “In this stage, ...reading becomes a process of judgment, analysis, and synthesis. Readers judge what is important, analyze how it fits with current knowledge, and then synthesize new knowledge on the basis of a high level of abstraction” (Steinman et al, 2006, p. 44).

Readers in Stage 5 are the most skilled readers of the population. These readers carefully choose their reading material. They consciously seek which material to focus

their attention and energy on, based on their previously established constructs of knowledge and experience (Steinman et al, 2006). Motivation for reading is intrinsic. The goal of reading is to continuously evolve in individual knowledge and reconciliation of personal knowledge with the knowledge of others (Trezek, 2010). Reading at this level, in this stage, allows the reader to selectively spend cognitive resources on only the most important portions of a text, and use the information therein to advance to increasingly challenging new ideas (Steinman et al, 2006).

The process of becoming a literate reader can be described as a series of stages or levels, as prescribed by Chall's Stage theory (Trezek, 2010; Indrisano & Chall, 1995). Each Stage builds on the skills of the previous stage (Trezek, 2010). Lacking experience or proficiency in one Stage will affect the acquisition of skill in each subsequent Stage, which will affect the progress toward reading at an academic level (Trezek, 2010).

Stages of Literacy in Deaf Children

The similarity of the progression of reading stages for students who are d/Deaf to that of students who are hearing has been, and continues to be debated by professionals (Stobbard, 2007; Mayer, 2007; Allen et al, 2009; Trezek, 2010). It has been asserted that theories regarding reading that have been developed while observing and researching hearing children will innately apply to the child who is d/Deaf or hard of hearing as they learn to read (Stobbard, 2007). Counter to this view, it has been proposed that for a child who is d/Deaf or hard of hearing, progression mirrors that of hearing students in only the early stages (Mayer, 2007). Mayer (2007) asserts that the early literacy skills of Deaf children develop in the same order as those of hearing children. Some professionals

disagree with this theory in its entirety (Allen et al, 2009). However, what appears to be in agreement among professionals is that all children who have a hearing loss are in danger of encountering reading difficulty, based only on their status of being d/Deaf or hard of hearing (Mayer, 2007).

One perspective supporting similar progression proposes that Chall's stage model applies to students who are d/Deaf or hard of hearing in the development of skills, but not necessarily on the same timeline (Trezek, 2010). In essence, this means that a student who is d/Deaf or hard of hearing will advance through the same progression of stages, but they will advance at a different rate than that of their hearing age-mates. This aligns with statistics related to d/Deaf readers, until their stagnation at Stage 3.

There are, however, some ways in which a child who is Deaf and whose first language is American Sign Language consistently differs from their hearing peers even in the earliest stages of emergent literacy. In Chall's Stage 0, multiple discrepancies arise. For the culturally Deaf student whose family uses American Sign Language in the home, they will be developing skills in reading a language (English) which they have not yet acquired (Trezek, 2010). Exposure to multiple languages may enrich the literacy experience for these children. Because these students continuously shift between engagement in the Deaf world and interaction with the larger hearing world, they are exposed to a greater variety in language than a hearing child who only experiences their own spoken native language. At home, the Deaf children are surrounded by ASL. In public, at school, at social outings, and in many other contexts, they see and experience spoken languages (Stobbard, 2007). Children are exposed to more variety in language,

but potentially have not fully acquired the language in which they are supposed to be learning to read.

Culturally Deaf students who use American Sign Language as their first language are English Language Learners. But, ASL is more than just a foreign language. Because ASL has no written and no spoken form, the Deaf student will never have the opportunity to hear or read their native language. This is in contrast to an English Language Learner who is able to connect written English with a written form of their own first language in its written form (Fileccia, 2011). Because of this, the reading progression of these children must be viewed through the lens of being Deaf *and* learning English.

“Second language learners benefit from explicit instruction in phonological awareness, phonics, vocabulary, oral reading fluency, reading comprehension, and writing” (August, McCardle, Shanahan, & Burns, 2014, p. 491). The propriety of phonics and phonological awareness for Deaf students, however, is not agreed upon by experts (Trezek, 2010, Allen et al, 2009). Some methods used to teach phonological awareness and phonics to students who are d/Deaf and hard of hearing include the use of Visual Phonics, Cued Speech, and speech reading instruction (Trezek, 2010). Other professionals suggest that outside of phonological awareness and phonics, there is potential for other methods of instruction that will lead to language competency (Allen et al, 2009). Additionally, the importance of phonological coding ability as a predictor of reading achievement has been questioned (Allen et al, 2009). Needs based grouping, ample practice time, and regular feedback are also known to aid in the development of language in this demographic (August et al, 2014).

As English Language Learners, Deaf children may be expected to learn to decode and read in a language which they are not yet comfortable using for communication. A child in this situation potentially has enough language developed to be able to read, but the internal connection of the relationship between reading English and understanding in ASL means that they will still experience obstacles with processing what they are reading (Trezek, 2010). Additionally, if the child is relying on speechreading, they are not being given complete access to all of the phonemes of the language (Trezek, 2010).

“Reading comprehension is the essence and goal of reading. It depends on decoding, vocabulary knowledge, and general language ability” (August et al, 2014, p. 493). If any one of these components is not complete, it will affect the comprehension ability of the reader. If the reader cannot comprehend what they are reading, the exercise is futile.

In Chall’s Stage 1, the child who is Deaf and uses American Sign Language may struggle with letter-sound correspondence if they are not exposed to English at the phonemic level. The lack of this primary understanding and skill, sound-letter correspondence, could be the inception of the struggle to read for students who are d/Deaf or hard of hearing (Trezek, 2010). Lacking proficiency in this one area can have a ripple effect on the progression of literacy. Upon commencement of formal education, each student will begin with a different language experience, and with differing degrees of the earliest skills in literacy. A student whose struggles at this point tends to fall behind in the process of learning to read. These early gaps often cause the student to stagnate at the educational juncture when learning happens primarily through reading. This has ramifications for all academic subjects (Stancel- Piatak, 2013).

Emergent literacy is the collection of experiences, understandings and ideas that precede skills in reading and writing (Hume et al, 2015). If these emergent skills aren't in place in Stage 1, the child is attempting to progress without all of the tools they need to become a skilled reader. Later, in Stage 2, if the child is still experiencing deficiency in the earliest literacy skills, they will experience increased difficulty attempting to progress (Trezek, 2010). This is the educational period where many students who are d/Deaf and hard of hearing stagnate in the process of learning to read fluently (Trezek, 2010). When a child experiences reading delays in the primary grades, it becomes harder for them to catch up to their peers in successive grades (Gullo, 2013).

Progression from emergent reader to skilled reader is also influenced by the overall language experience and competency of the child. However, research connecting language with early literacy skills for deaf children is limited due to concern over acquisition of a first language and communication modality choices (Stobbard, 2007). Research focus has traditionally centered on the communication choices of the family, and the language skills of the child in the chosen communication medium. The research specifically on early literacy in Deaf learners is rare. The reasoning is that the focus of research has been on communication modality choices, assuming that developing language precedes development of literacy skills. Because of this belief, language is given more emphasis as it is viewed as more important than early literacy (Stobbard, 2007). This logic focuses on development of the first language before addressing literacy needs that will develop in a second language.

The aforementioned studies delved into the earliest exercises in literacy for deaf children emphasize the importance of experiences in the home including quality of

language, access to language, and literacy-related interactions with adults in the home (Stobbard, 2007). The importance of home practices and attitudes regarding literacy are established. The literature has shown that family involvement in promoting literacy is key to development of emergent literacy (Federal survey, 1996). The United States Department of Education (1996) reports that the single best predictor of future success in reading is the extent to which children are read to when they are very young. Because home is where a child is first exposed to these elements of literacy, and where the foundations of literacy are laid, it is imperative to understand what these literacy practices look like in a home where parents and children are Deaf.

The similarity of progression through stages of reading by a child who is d/Deaf or hard of hearing is not agreed upon by professionals (Stobbard, 2007; Mayer, 2007; Allen et al, 2009). There are consistencies in the divergence of skills for students who are d/Deaf or hard of hearing from that of their hearing peers. These commonalities include issues related to development of multiple languages, learning to write in a language that has not been fully acquired, lack of phonological awareness, and phonics skills (Trezek, 2010; Stobbard, 2007; Allen et al, 2009). The home language experience and literacy experience for a child who is d/Deaf or hard of hearing will influence the language development and literacy development of the child (Stobbard, 2007). These skills and experiences contribute to the literacy development of the child.

Effective Strategies to Promote Literacy in Children Who are Hearing

Some of the components of literacy include the ability to decode words and passages, fluency, vocabulary, and comprehension (August et al, 2014). Acquisition of

these skills must be preceded by sufficient acquisition of a first language. “There is an intimate connection between language acquisition and subsequent literacy development, such that children who begin schooling with stronger language abilities have a relatively easier time making the move to text-based literacy” (Mayer, 2007, p. 412). It is logical that a child must have skills in language before they are able to learn to read text in that language. The process of learning to read is developmental. Skills are built upon previously acquired skills, with the complexity increasing at each level. Literacy comprehension is driven by the reader’s general language competence (Trezek, 2015). Possession of language skills is a crucial precursor to emergent literacy. Basic vocabulary and syntactic skills will contribute to becoming a skilled reader (Mayer, 2007).

Early literacy skills which are acquired in the home positively influence educational outcomes later in the scholastic career (Stancel- Piatak, 2013). Research has shown that the literacy skills initially developed at home are the foundation upon which reading in school should be built (Faires, Nichols & Rickelman, 2000). These literacy skills initiated and fostered at home are even more important when viewed with the knowledge that early literacy contributes to subsequent scholastic success (Mayer, 2007). One avenue for developing home based emergent literacy is through in home shared reading. When children are engaged in storybook reading, they learn how text functions. They are exposed to the process of making sense of print (Mayer, 2007). When a child interacts with a storybook through shared reading with an adult, they are experiencing and learning both literacy and language (Gioia, 2001). During shared reading, the child gains in their repertoire of expressive and receptive language, skills in both literal and inferential comprehension, increase in their mean length of utterance, ability to recognize

letters and numbers, understanding of concepts, and their interest in book reading increases (Faires et al, 2000). It is noteworthy that one practice can contribute to so many components of early literacy. The US Department of Education, after implementing a survey that tracked varying influencing factors on reading achievement, concluded that when parents read to their children, they are facilitating the children's learning of the most primary reading skills (Federal survey).

Belief that learning to read does not commence until first grade is a commonly held misconception (Faires et al, 2000). "Parents are their children's first and primary teachers" (Faires et al, 2000, p. 195). Exercises that parents can engage in that help build early literacy foundations include keeping a family journal, recording their children reading, looking at wordless picture books with younger children, engaging in activities with books, and reading books in a group setting (Faires et al, 2000).

"In 1997, Congress asked the National Institute of Child Health and Human Development, through its Child Development and Behavior Branch, to work with the U.S. Department of Education in establishing a National Reading Panel that would evaluate existing research and evidence to find the best ways of teaching children to read" (National Reading Panel, 2000). In the year 2000, the National Reading Panel released its report on effective techniques for teaching children to read. Five crucial components to reading instruction were included: phonemic awareness, phonics, fluency, vocabulary, and comprehension (National Reading Panel, 2000).

Phonemic awareness is the understanding that sounds make up words (Trezek, 2010). Studies have shown that the knowledge that a child possesses of letters and their phonemes upon entrance to kindergarten are the best predictors of future success in their

first two years of reading instruction (Trezek, 2010). When children are able to maneuver phonemes in words, they are equipped for learning the correspondence of phoneme to grapheme, or written symbol (Trezek, 2010). In the home setting, parents can support phonemic awareness development by singing alphabet songs with their children, reading stories chosen by their child, emphasizing the beat of music and songs by clapping, identifying letters that are interesting to the child (such as the letters that compose the child's name), making up rhymes, reading rhyming books, and singing songs that manipulate phonemes (Darling, 2005).

Phonics is the connection between spoken sounds and the symbols, or letters that represent them (Trezek, 2010). Phonics skills develop first, and upon mastery of these skills, the emerging reader will move on to reading words, then sentences and paragraphs (Trezek, 2010). Phonics instruction normally commences with school age children as they are learning letters. Some of the suggestions for fostering phonics skills can be practiced prior to school entry, and some are more appropriate for after schooling has begun. At home, parents can initiate phonics awareness by listening to their child read, helping students sort words by the vowel sounds, breaking larger words into smaller chunks, playing spelling games like Boggle and Scrabble, and maintaining contact with the classroom teacher regarding phonics development (Darling, 2005).

Fluency is the ability to read accurately and quickly with proper expression (Trezek, 2010). "Fluency is the critical bridge between word reading and comprehension" (Trezek, 2010, p. 36). Parents modeling fluent reading that imitates conversational speech is the first exposure to fluency that emergent readers see. This helps the child understand the link between written word and expressed language.

Vocabulary is the repertoire of known words both in spoken or visual form, and in written form (Trezek, 2010). In order to learn to read, a child must first have a firm grasp on a primary language. When they have developed a first language, they then learn how to interpret that language when it is represented in print (Wang, 2008). Vocabulary can be learned through both direct instruction, and indirect exposure to communication (Trezek, 2010). Parents can support development of vocabulary by reading differing genres of books with their child, discussing events and materials read with their child, examining and discussing illustrations in books and their relationship to the text, searching for new words in text and explaining their meaning, and investigating terminology related to interests of their child (Darling, 2005).

Comprehension, or the ability to understand what has been read, is the goal of reading. “Vocabulary and reading comprehension are related. Vocabulary knowledge supports overall understanding of text and that understanding then facilitates the learning of new words” (Wang, 2008, p. 63). Teaching multiple strategies for comprehension allows for maximum comprehensive benefit (Wang, 2008). Monitoring of comprehension, use of graphic and semantic organizers, answering and eliciting questions, direct instruction regarding story structure, and summarizing are all comprehension strategies (Trezek, 2010). Comprehension should be monitored throughout textual reading both at home and at school. When reading at home, parents can foster comprehension by cueing their child to predict what will happen next in a book, asking children who/what/where/why questions related to a book that has recently been read, probing their child’s knowledge of a subject before reading about it, and asking their child what they think the topic or life lesson from a book is (Darling, 2005).

Before literacy can be developed, a child must first have acquired a first language (Mayer, 2007). Becoming literate is a developmental process in which skills build upon previously learned skills (Trezek, 2015). The foundational literacy skills are developed in the home, before formal schooling (Faires, Nichols & Rickelman, 2000). Skills common to good readers, according to the National Reading Panel (2000) are vocabulary, comprehension, fluency, phonics, and phonemic awareness.

Effective Strategies to Promote Literacy in Deaf Children

Students who are Deaf and use ASL as their first language will begin the process of becoming literate with language exposure and interactions that are different from the average hearing child's (Trezek, 2010). The importance of development of a first language for students cannot be overlooked. Deaf children frequently have not developed their first language, which impedes their ability to learn to read (Mayer, 2007). "Without a full face-to-face language in place, deaf children often do not have the requisite basis in place for age-appropriate cognitive and literacy development" (Mayer, 2007, p. 413). Without possession of a first language developed to the point that they students are equipped to begin literacy learning, these students are beginning the process of learning to read with holes in their knowledge base.

If the student's first language is ASL, it is imperative that their educators be proficient in ASL, so that the signing abilities of the teacher do not limit the linguistic potential of the student (DeLana, 2007). Within one successful program of Deaf education, the competency of the educators in use of ASL for communication and instruction was a high priority when considering who to hire (DeLana, 2007).

Additionally, hiring and retaining deaf staff was a priority (DeLana, 2007). Programs worked to intentionally maximize the language potential for each child (DeLana, 2007).

“For deaf children who use ASL as their first language, the challenge is that the text does not represent the language they are signing. There is no logical way for them to see their face-to-face language in terms of English print, as English print was never designed to represent ASL in the first place” (Mayer, 2007, p. 425). Because ASL has no written form, we are asking these students to connect the written form of a foreign language to their own possibly under-developed first language, all without ever seeing a written form of their first language. It is a unique educational situation. “Signing in one language and writing in another is a translation activity that goes far beyond what we are asking of young hearing writers in early literacy programs” (Mayer, 2007, p. 426).

Successful literacy programs place emphasis on creating a print-rich environment. The focus is not on literacy-learning strategies that are frequently acquired without direct instruction (Mayer, 2007). Rather, prominence is given to literacy learning areas that tend to be problematic (Mayer, 2007). Students in these programs have been observed using varied approaches that connect fingerspelling and signing to understanding of print (Mayer, 2007). This shows the process of reconciling ASL with English. Within a program that uses ASL to teach English, “...attention must be paid to the ways in which face-to-face English is developed. It is not the presence of ASL but the absence of some form of face-to-face English that is at issue, and the challenge for educators in bilingual programs is to sort out the balance between the two languages that allows for sufficient opportunities for the development of both” (Mayer, 2007, p. 416).

Within one school program that used ASL to teach reading in English, emphasis was placed on collaboration among educators and home support (DeLana, 2007). Within the school, Deaf teachers and staff served as role models for the students in the program. “Age at onset of hearing loss, level of hearing loss, absence or presence of assistive listening devices, ethnicity, parental sign skills, presence of Deaf family members, home language, and IQ” were not significant contributors to academic success (DeLana, 2007, p. 83-84). In contrast, the pivotal factor in reading development was the involvement of the parents (DeLana, 2007).

In a case study titled “A Deaf Child Learns to Read,” the child was provided with a print rich environment (Rottenberg, 2001). The child was given freedom to play and explore children’s books and other print mediums. This was deemed crucial (Rottenberg, 2001). The child’s self-image was a contributing factor to their success. “He always viewed himself as a reader” (Rottenberg, 2001, p. 270). Support in the home context was important. The child was also exposed to sign print. Sign print was viewed as a connector between understanding what the illustrations conveyed and reading printed English (Rottenberg, 2001).

In another case study, fingerspelling was shown to relate to reading accomplishment (Gioia, 2001). The teacher in the case study would teach new vocabulary by showing the students the word in print, then fingerspelling the word, and then showing the ASL sign for the word (Gioia, 2001). The teacher “helped the children make connections between the stories and their lives, and learn the difference between fact and fiction. She accepted the children’s points of view as valid and her interactions were marked by a fundamental respect for their interpretation” (Gioia, 2001, p. 421). Teaching

worked to engage the children and keep them interested in the stories and illustrations. When students commented on the books being read, the teacher responded and expanded on their observations. Reading was an interactive activity (Gioia, 2001).

“Although [findings of the National Reading Panel] were not designed to address the issues of literacy development of the d/Deaf and hard of hearing population, the ideas and recommendations put forth by that panel are still relevant for this group...” (Wang, 2008, p. 53). One strategy used to address phonemic awareness and phonics development in the population of d/Deaf and hard of hearing students that has had some success is Visual Phonics (Wang, 2008). Adequate phonics skills are consistently lacking in the population of readers who are d/Deaf and hard of hearing (Wang, 2008). Repeated guided oral reading is one of the main methods used for fluency instruction. There is no research that has been published, however, that evaluates this method for aiding the fluency of readers who are d/Deaf or hard of hearing (Wang, 2008, p. 59). Research has shown that indirect and direct instruction aids in building the vocabulary learning for students who are d/Deaf and hard of hearing (Wang, 2008).

The development of a first language is the first step toward literacy (Mayer, 2007). When the first language is ASL, a child must learn to read print in a language that is not their first language (Mayer, 2007). One contributor to literacy development is the presence of print in the environment (Mayer, 2007). Another contributing factor to language and literacy development is the quality of language models, and the cooperation among teachers to include literacy in each element of education (DeLana, 2007). Application of the findings of the National Reading Panel (2000) to literacy training for students who are d/Deaf or hard of hearing are relevant (Wang, 2008).

METHODS

The purpose of this study was to investigate the manner in which families who have more than one child who is Deaf and where American Sign Language is the first language played a role in each child's literacy development. The study explored the individual differences among children within a family that may also contribute to the literacy development in the home context. Specific research questions included the following:

1. In what ways does family involvement in the literacy process differ when the child is Deaf and American Sign Language is the first language, compared with the literacy process with a hearing child who uses spoken language?
2. What are the factors that impact family involvement in the literacy process when a child is Deaf and American Sign Language is the first language?
3. What is the measure of language and vocabulary, which is an indicator of future literacy competency, for each of the culturally Deaf individuals whose first language is American Sign Language living in a home with culturally Deaf parents and siblings?

Approval for this study was received from the Missouri State University IRB on October 19, 2016 (Study # IRB-FY2017-014).

Research Design

The research design of this study was mixed methods, drawing upon both qualitative and quantitative data to derive assumptions and generate future research questions for future studies. "Mixed methods research is an approach to inquiry that combines or associates both qualitative and quantitative forms. It involves philosophical

assumptions, the use of qualitative and quantitative approaches, and the mixing of both approaches in a study” (Creswell, 2009, p. 4). This research approach is not qualitative data in seclusion and quantitative data in seclusion. Rather, both approaches are used cooperatively throughout the entire design of the study (Creswell, 2009). When both qualitative and quantitative data sets are analyzed together, they give a more complete picture of the subjects than one form of data alone is able to convey.

The observational portion of the study supplied the qualitative portion of data. This component of the study employed a case study data collection approach involving in-depth interviews with parents, participant observations conducted within the home, and the use of a priori emerging coding system for analyzing transcripts of both observations and interviews described by Strauss and Corbin (1990). Emerging themes were explicated in the findings as narrative, and some frequencies of occurrence of categories was reported related to the phenomenon under study.

The assessment portion of the study gathers quantitative data. In-depth profiles of the children within the case study were created that include test scores on a set of measures which have been identified as important to studying the potential impact of ASL on development. Each individual profile was compared, providing contrasts which helped to understand additional variables that might explain factors impacting development, the use of ASL notwithstanding. Each child was assessed in order to understand their progress through the stages of literacy.

Participants

The participants in this case study were a culturally Deaf family living in an urban

area in the Midwest United States. Their first language is American Sign Language. The language used in their home is American Sign Language. This research requires a home where ASL is the first language in order to examine how emergent and early literacy is affected by the use of ASL.

Present in the home are two parents and their four children. Because of the low incidence of culturally Deaf parents with Deaf children, convenience sampling was utilized for this study. Consent forms (Appendix A) were presented to the parents in print format, and then interpreted in American Sign Language (Creswell, 2009). A paper assent form (Appendix B) was presented to the oldest child, and then the assent was interpreted in American Sign Language (Creswell, 2009). These forms indicated that participation was voluntary, and that any of the participants could decline or withdraw from participation without penalty. A list of interview questions was used (Appendix C) to initiate interviews, and emerging topics were explored based on the answers to those questions.

Both parents, participants 4 and 5, attended residential schools for the deaf. Participant 4 attended public school in a mainstream setting for their primary grades. Participant 5 attended public school for a six month period in high school. Both participant 4 and 5 have attended community college, completing classes but not earning a degree. Participant 1 is an elementary student who attends school in a public mainstream setting. This participant attended pre-kindergarten at a local public school in a special education setting prior to beginning elementary school. Participant 2 is a preschool student currently attending a preschool that serves students who are d/Deaf and hard of hearing. Participant 3 is a toddler, and has received no early intervention or

schooling. Participants 4 and 5 intend for participant 3 to attend a specialized preschool for students who are d/Deaf or hard of hearing, when it is age appropriate. Participant 6 is an infant living in the home. This participant was observed in interactions with each of the other participants.

Data Collection Instruments and Procedure

Observations were conducted in the home of the participants, and were recorded on an observation form (See Appendix D). This setting was chosen so that the literacy practices of the family could be observed in their most natural setting. Special attention was paid to known early indicators of literacy, and whether they were present or absent in the home. Interactions with text by the adults or the children were noted. Presence of the relationship between ASL and written language was observed and recorded on the researcher's notes. Interactions between siblings and interactions among all family members were observed. Observation periods were scheduled for one hour in length, but both the researcher and family were flexible with this time limit. When appropriate, observations could be continued longer than two hours. It was communicated that if the observation was not progressing or there was some extenuating circumstance, it could be cut short or rescheduled if necessary. The observations and interviews took place over the course of ten weeks.

The interview with one adult participant took place at a local coffee shop. A private room was reserved. This setting was chosen so that the interviews could be conducted with minimal distraction and interruption. The interview with the other adult took place in the home of the participants. This was an alternate location that was chosen

due to a family situation. While participating in the interview, the interviewer and participant sat at a table that was separate from the rest of the household in order to minimize distractions and facilitate ease of communication. Questions related to literacy, language, communication, and education were asked (see Appendix C). Questions about each adult's opinions and experiences regarding reading were asked. Time was allowed for supplemental information that the interviewer thought relevant, or that the participant felt compelled to share. Each adult participated in one interview scheduled to last one hour. In both cases, the interviews went longer than the scheduled time.

The TOPEL, or Test of Preschool Early Literacy, was given to the three oldest children. This assessment is designed to identify preschool age students who are at risk for literacy problems. Areas assessed include print knowledge, definitional vocabulary, and phonological awareness. The print knowledge portion of the assessment includes 36 questions/prompts, and measures alphabet knowledge and early knowledge about written language. During this portion of the test, the child is prompted to identify letters and written words, point to a given letter, name specific letters, etc. The definitional vocabulary portion of the assessment includes 35 questions/prompts, and measures single-word vocabulary and definitional vocabulary. The child is shown a picture and asked to give the corresponding word, which is in sign form for this case study. The phonological awareness portion of the assessment was not given, as it is not appropriate for a child whose language is not spoken. The age range that this assessment was designed for is 3 years through 5 years and 11 months. This assessment is norm referenced, but the reference is not to children who are d/Deaf or hard of hearing.

The EOWPVT-4, or Expressive One Word Vocabulary Test 4th edition, was given to the three oldest children. This assessment is an individually administered assessment of vocabulary that is appropriate to administer with persons age 2 years through age 80+. Color pictures are presented, and the prompt is given to name what is shown. The picture prompts include objects, actions, and concepts. The labeling of vocabulary targets was in sign form for this assessment. Results of this test are percentile ranks and age equivalents. This assessment is norm referenced, but the reference is to hearing individuals, not individuals who are d/Deaf or hard of hearing.

Appropriate portions of the Brigance Inventory Early Development III Standardized were given to the preschool age and elementary age children. This inventory is designed to assess school readiness skills, identify strengths and needs of the child, plan individualized instruction, and monitor progress. The assessment includes norm-referenced/standardized sections and criterion-referenced skill based sections. Within the criterion-referenced section, the early academic skills section was partially used including readiness and basic reading skills. This assessment is appropriate for age birth through 7 years, and the norm-referenced portion of the test was not normed on individuals who are d/Deaf or hard of hearing.

The preschool age child was evaluated using the Carolina Curriculum for Preschoolers with Special Needs. This curriculum is an assessment and intervention program that was created for use with children who have some form of disability. This is a criterion-referenced system that allows for modifications for individuals including the use of sign language. This curriculum is arranged in a hierarchy of developmental tasks that have been shown to be important for daily life, and are necessary for long term

development. Skills are observed and marked off of an assessment log. A corresponding age equivalency is given when the inventory of skills is complete. Skills are in the areas of cognition, communication, personal-social, fine motor, and gross motor. The purpose of using this tool is to use information from the assessment in planning intervention that is meaningful and beneficial for the child.

Member checks were utilized during the observational and interview portions of data collection. When utilizing member checks, the researcher periodically asks a question or gives a comment related to what has been observed. The subjects then have the opportunity to clarify or correct what the researcher perceived. This measure ensures that observations are reliable and valid, and serves as an additional protection for the research subjects.

Another measure taken to ensure validity and reliability was peer review. After observations, interviews, and assessments were collected, all data was presented to at least one, and sometimes two peers qualified to interpret the data. These peers gave input on emerging themes and gave coding recommendations for the data.

Data Collection Procedure and Analysis

Data was collected from observations, interviews, and assessments. Observations took place in the home of the study participants. One interview took place in a nearby coffee shop. The second interview took place in the home of the participants.

Assessments were given in the home of the participants. The participants were informed that at the completion of data collection, they would be given a \$100 Visa gift card as

incentive. Participants were assigned coded numbers for confidentiality purposes. These numbers were used for coding data and presenting results.

Data from the qualitative observations and interviews was coded using an a priori emerging coding system. Preset themes for this data set include the presence of known contributors to literacy in hearing children and practices in literacy using ASL with Deaf children. Additional themes that emerged were used to give implications for future research of literacy in a home where ASL is the primary language, and strategies for using ASL to aid in literacy development. Data from each of the three sources was triangulated, looking for possible patterns. Outlying themes that emerged were considered in the data analysis process. Data from the quantitative assessments was scored and compared with normative and criterion-referenced samples, dependent on the design of the assessment.

Limitations

One limitation of this case study is that the information gathered is not generalizable. A generationally Deaf family is such a low incidence, and the data gathered for this family is specific only to the family. The data cannot be generalized to all families with a d/Deaf or hard of hearing child, or to all generationally Deaf families.

Another limitation of the study is that all data was taken by one researcher. The observations, interviews, and assessments all came from the same person. The individual's perspective and skills in reading sign language may have influenced the data that was collected.

A final limitation of the study is the familiarity of the researcher and the family. The researcher was previously introduced to the family in a social context. Connections to the family outside of the research setting may have had an impact on the data collection.

RESULTS

The purpose of this study was to investigate the manner in which families who have more than one child who is Deaf and where American Sign Language is the first language play a role in each child's literacy development. Presented in the results chapter is the compilation and analysis of data collected during observation, interview, and assessment of the participants. The participating family was observed in their home, the adult participants were interviewed, and the children were assessed as appropriate per their age and abilities.

Demographics about each participant will be presented. Qualitative data from observations in the home will be presented first. Observation data will be followed by qualitative data collected from interviewing the adult participants. This will include relevant demographic information about the participants. Quantitative data compiled from the assessment of age and ability-appropriate child participants will be presented last.

Participants

Participant 1 is the oldest child in the home. This child is early elementary age, and at the time of observations and assessments, had completed ½ year of pre-kindergarten intervention, and was in the midst of their first year of formal schooling. This participant excitedly welcomed the researcher and was actively engaged in communication with the researcher, their parents, and their siblings during each observation and assessment period. Participant 1 was frequently observed helping to give

care to their younger siblings, playing and entertaining them. This participant was responsive when prompted to do things within the home. One example is when a parent gets the child's attention, and then asks them to go to another room and get a pencil. The participant attends to the communication, understands receptively, and follows the command by getting the pencil.

This participant continually showed enthusiasm when asked to interact with print. During observations, this centered on the one children's book that was in the home. Participant 1 always knew the location of the book in the home. During observations, the participant read the book to the researcher, and to their siblings. When observed coloring with their siblings and a friend, this participant proudly wrote the name of each child on their paper.

Participant 1 modified their use of language to match the language skills of their communicative partner. This was especially evident when communicating with their youngest siblings. While participant 1 used complex, fast signing when communicating with adults, he/she used slow and simple language when communicating with their infant and toddler siblings.

Participant 2 is the second eldest child in the home. This child is preschool age, and at the time of observations and assessments, had completed ½ year of preschool that serves children who are d/Deaf and hard of hearing. This participant was far more reserved than their older sibling. The participant was shy, often not responding to communication attempts by the researcher during observations. Participant 2 was observed interacting with their siblings, but if they realized that they were being watched, they often halted communication. Participant 2's communication was frequently short in

duration. This may have been due to their shyness and discomfort with having a new person in their home.

Participant 2 was not comfortable with the assessment portion of research during two of the sessions. On the third and fourth assessment days, however, participant 2 performed well for the assessments. Their behavior showed that they were comfortable, and even motivated to achieve success on the different assessments.

Despite their reserved temperament, this participant was observed engaged in communication with their parents and siblings, and toward the end of the research period, engaged in communication with the researcher. Participant 2 was observed using language receptively and expressively with their family members and with the researcher. Participant 2, like their sibling, was observed matching their expressive communication with the receptive skills of their communication partner. When signing with their baby sibling, participant 2 was observed manipulating signs to approximate signs relevant to the conversation.

Participant 3 was the next-to-youngest child in the home. This child is toddler age. At the time of observation, participant 3 had not participated in any educational programs. Parents reported that when the participant was old enough, they would attend the same preschool for children who are d/Deaf and hard of hearing that participant 2 is currently attending.

Participant 3 was thrilled to have the researcher in the home during observations. They frequently initiated communication with the researcher. When their siblings were being assessed, participant 3 was eager for their turn to be assessed. This participant was continuously laughing and playing. They had a very outgoing temperament.

While participant 3 was observed using language for communicative purposes, the language used was not purely ASL. Gestures and physically directing their communicative partner was utilized frequently. For example, participant 3 would take one of their parents by the hand and lead them to an object that they were indicating. This is reflective of the level of language development of the child. When this happened, the parents would indicate the item, then show participant 3 the sign for that item. Participant 3 would then imitate the sign.

Participants 4 and 5 were the parents in the home. Both parents stay home full time, caring for their family. Both parents completed high school and some college courses. Participants 4 and 5 warmly welcomed the researcher, willing to discuss any topics relevant to literacy with honesty and openness. They shared their experiences in education, good and bad, and gave their perspective on literacy in their home and their priorities for their family.

The home of the participants was continuously filled with visual language. The language observed ranged in complexity and depth. Each participant interacted with the others and with the researcher, on various topics and for various lengths of time. The family welcomed discussion of their own personal literacy, and were hopeful that the study would benefit future literacy programming.

Table 1 displays child participants' information relevant to literacy and the focus of this study.

Home Observations

Literacy in the context of a home can be divided into four parts: physical, cultural,

Table 1. Information of child participants relevant to literacy

Child Participants	Age/school level	Temperament	Interest in print observed
Participant 1	Early elementary	Eager, welcoming	Yes
Participant 2	Preschool	Shy, reserved	No
Participant 3	Not attending	Excited, welcoming	Yes

linguistic, and functional literacy. Physical and linguistic literacy were observed in the home of the participants. The results are delineated in the following section.

The first contributor to literacy observed was the presence of print in the home. Print falls under the domain of physical literacy within the home context. Upon each observational period, mediums of print were evaluated and noted. There was a limited, but consistent amount of print available within the home.

Print observed on the initial visit included captioning on the television, mail kept on the counter, and one children's picture book. Participant 3 was engaged with a piece of mail for 15 minutes. The participant examined the mail, showed it to their parent, and then continued to open and close the print. This interaction was initiated by the child. Outside of showing the print to the parent, this interaction was solitary.

During the same visit, participant 3 was engaged with a picture book for eight minutes. This was a wordless book. When prompted by the researcher to show other children's books, the participant related that there were none in the home. Participant 3 was observed looking at three pages in this picture book. The participant held the book in the proper orientation, turning the pages from left to right. The participant looked at the left page first, commented, then looked at the right page. The participant commented on

the character and plot of the story on the first three pages. The participant then lost interest, and moved on to another activity.

This picture book was observed by the researcher on each visit. The book was always kept in the common living area of the home. When asked any question related to any book, participant 3 referenced this particular book. It held special interest for this participant because it was a Christmas gift that they received very recently.

During the second observation, additional print observed in the home included a set of flash cards. These flash cards showed printed words and illustrations. There were six categories with 54 cards in each. Participant 4 explained that these cards were used with the children in the family because they successfully held the attention of the children for longer periods than a book would. The cards were used by the parents to teach vocabulary in the form of American Sign Language. The parents would show a picture card, then show the sign for the item pictured on the card, prompting each child to imitate the given sign.

During a peer debriefing session held after the first three observations, the thesis committee agreed that the physical aspect of literacy had been sufficiently documented. It was concluded that the limited print items in the home, the absence of writing activities in the home, and the low context of literacy were contributors to the pre-literacy skills of the children within the home.

Another contributor to literacy that was observed in the home was the impact of language, specifically American Sign Language, relative to literacy. This falls under the domain of linguistic literacy within the home context. Communicative initiations and responses were observed and recorded during each period of observation.

Many characteristics of language contributing to the acquisition of language and subsequent literacy that have been observed in spoken language were present in this home, in the form of visual language. Both participant 4 and participant 5 were observed using “Motherese.” This is language that is slow and simple, intentionally used to convey meaning to young communicative partners for the purpose of acquiring and using meaningful language. These participants served as language role models for the children in the home, intentionally instructing language learning for each of the child members of the home.

The home was a space that was rich in visual language. The adult participants were continuously communicating with each other, modeling adult communication in the presence of the children. The adults also engaged with the child participants consistently, and at a level appropriate for their developmental age. During meals, when watching television, and when playing, there was communication happening between the adults and children, and among the children.

The mean length of utterance (MLU), or average number of words spoken per utterance, is shown for each child participant in Figure 1. Participant 1 had an MLU of 1.55 words per utterance. This is 3.45 words below the average MLU for a child of the same age who uses spoken language, which is a significant discrepancy. This appears to be contrary evidence when compared with other assessment data collected during this case study, as the participant displayed more advanced skills than would generally accompany an MLU this low. The language sample used to calculate MLU could have been impacted by the setting of the observations. Because the observations took place in the home with four young children, the opportunities for this participant to give complete

utterances may have been limited. A one on one setting may provide a language sample that would result in a different MLU for this participant.

Participant 2 had an MLU of 1.33. This is 1.67 words below the average MLU for a child of the same age who uses spoken language. Participant 3 had an MLU of 2.42. This is 0.42 words above the average MLU for a child of the same age who uses spoken language. This data may be skewed by the presence of an unknown adult, which could make the child participants behave shyly and limit their communication. This could also be skewed by the number of utterances observed. Finally, the data could be impacted by the average expected MLU when spoken language is used, versus the average MLU that would be expected when sign language is used. Overall, each of the child participants was observed to understand the function of visual language and use it appropriately for their developmental age. A chart showing MLU data is below.

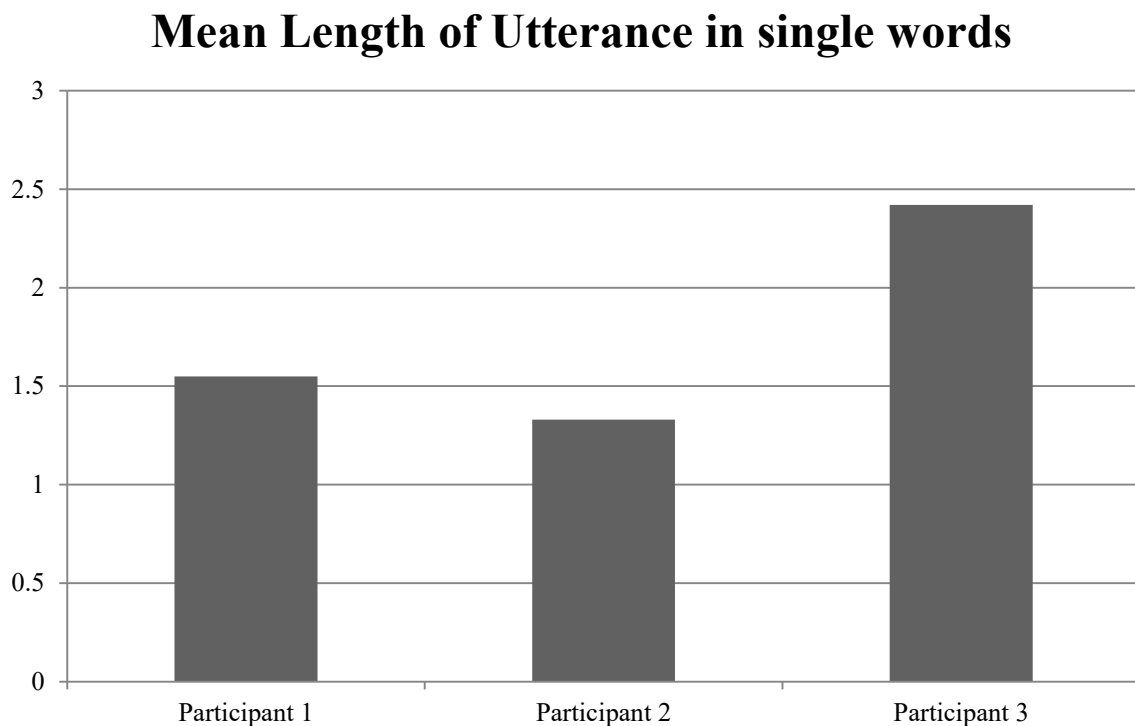


Figure 1. Mean length of utterances of child participants during observations

Interviews

Demographic information relevant to literacy was collected during the interviews with each of the adult participants in the home. Participants were asked a series of predetermined questions. Additionally, allowance was made for evolving topics led by the participants. Participant 4 was interviewed first. This interview took place at a local coffee shop in a private room in order to minimize distractions.

Participant 4 attended school in a mainstream setting for the first six years of their education, and spent the last six years of school at a residential school for the deaf. During their final year at the residential school, they were concurrently enrolled in the local public high school. The purpose of this dual enrollment was to allow the participant to take classes that were not offered at the residential school. Participant 4 graduated high school at age 18 with a high school diploma from the state school for the Deaf.

This participant completed some college courses at a community college, lacking only one semester of courses to earn their associate's degree. Extenuating circumstances prevented this participant from finishing their degree, but they plan to pursue this in the future. Participant 4 had a wide range of experiences in school and college. They were a very active student, participating in social clubs and all sports that were offered.

The experience of learning to read for this participant took place in a special education room in a public school. The participant remembers learning letters and their associated sounds. Speech, which was difficult because of the participant's profound hearing loss, was an important component of learning to read. The participant recalls struggling in speech classes that used tactile and kinesthetic methods. They acknowledge,

however, that this is a valuable skill. Still, when the choice to continue speech was left up to the participant, they elected to quit. This happened in high school.

The participant also recalls other common methods used in teaching reading. These include chunking words, practicing reading them separately, and then combining the two parts. They recall other exercises as well, such as clapping out the syllables when reading or attempting to pronounce a word. When asked if they use any of these methods when interacting with their elementary age child, they responded that they do not often practice literacy activities.

Per self-report, participant 4 enjoys reading. Genres of reading material that they enjoy include drama, mystery, and word/letter puzzle books. They consider themselves a recreational reader, but having young children in the home inhibits the ability to do this. This participant remembers in particular one reading experience that happened in late elementary school. A reading was assigned. There was a subsequent contest with a quiz over the material, and prizes were awarded during a school party. The participant enjoyed the material immensely, and progressed through the quiz portions of the contest, winning the top prize. They consider this to be the time when they truly internalized the love of reading and the confidence to label themselves a true reader.

This participant values the ability to read highly for their children. They prefer their children attending their primary grades in public education in a mainstream setting. The reasoning for this is that they deem public education to have better quality of education related to reading. Public education, in a mainstream setting with an educator of the Deaf, is more challenging in their opinion. They shared information about the

improvements that their school age child has made from one quarter to the next, and commented that the child's interest in books and reading is high.

When asked about social opportunities for their children when attending a public mainstream class, the participant said that as long as their children have at least one friend, they are satisfied that it is enough. They stress that learning the foundations of education, especially reading, is vital for their children, and that the best place for this to happen is in a public mainstream classroom. Their plans for education past the primary grades are to have their child attend a residential school for the Deaf.

Participant 5 was interviewed in the home of the participant. This interview was originally to take place in the library, but circumstances prevented this from being possible. This interview took place three weeks after the interview with participant 4.

Participant 4 attended school at a residential school for the Deaf through age 16, when their family moved. Upon moving, the participant and their siblings attempted to enroll at the new state's school for the Deaf, but were told that there would be a waiting period. Not wanting to take a break from school, the participant enrolled in the public mainstream school in their new town. They spent six months in this school setting before transferring to the new state residential school for the Deaf.

The experiences between the two state residential schools for the Deaf had some similarities and some differences. Each school had areas of strength and areas of weakness, in the experience of the participant. The participant compared the two schools in several areas including social opportunities, quality of education, extracurricular offerings, residential life, and disciplinary procedures.

Many language use and learning opportunities present themselves in social situations. This is especially the case for students who use visual language as their primary mode of communication, as their primary language is not shared with the greater population. In the area of social opportunities, one residential school, hereafter referred to as school A, school tended to be very “click-ish.” Students formed social groupings. Student interactions within the school were limited to their smaller social group. In the other residential school, hereafter referred to as school B, there was a larger grouping of students that included the main classes, life skills students, and those with more prominent conditions and disabilities. In the second school setting, participant 5 found social interactions to happen more naturally and with ease. By integrating with the full population of the residential school, students learned to navigate social situations with a diverse population. Participant 5 feels that this setting provided valuable experiences that prepared them for social interactions involving language outside of school, and later in life.

In the area of academics and quality of education, again, the experience among the two schools was dissimilar. School A maintained consistent schedules of classes and content covered. Specific to reading, participant 5 recalls working on reading every day at school. Instruction would include reading a paragraph, then answering questions about the paragraph. When a student was not familiar with a word, the teacher would give the sign and fingerspelling for that word. While participant 5 found this type of instruction to be very effective, they did not enjoy it. Students at school A were grouped by ability. This served to motivate students to continue progressing. Learning build upon previously taught skills. Participant 5 found this method to be very effective.

At school B, reading instruction was more sporadic and lacked depth. Participant 5 recalls having a reading lesson two to three times each week. Reading was not accompanied by questions to check comprehension. Participant 5 felt that reading was not a priority within the educational context of school B. Overall, participant 5 felt that the quality of education, and specifically the quality of reading instruction, was of higher value at school A than at school B. Students at school B were grouped by age. All levels were grouped together. Participant 5 did not find this to be engaging or motivating because there was frequent repetition, and the participant often became bored with the lessons.

Participant 5 also compared the extracurricular offerings, residential life, and disciplinary procedures of each residential school they attended. This information was not coded as data, however, because it was not relevant to the purposes of this study. Participant 5 reports that each experience was valuable in their education.

The experience of the participant in the public school mainstream setting was also relevant to literacy and education. This was a short-term placement due to a delay in admittance to the residential state school for the Deaf after moving from another state. Participant 5 utilized an educational interpreter at this school placement. The skill level of the interpreters was frequently a source of frustration for the participant. When communicating, the interpreters would ask the participant to slow down their signing. In classes, if the participant wanted to answer a question posed by the teacher, they often felt that the interpreter was unable to properly voice for them. This led to feelings of embarrassment and feeling misunderstood. The participant eventually retreated from attempting to participate in classes and interact with other students. This six month period

proved frustrating in relation to language and communication. The participant, however, feels that the quality of education provided at the public mainstream school was still a significant portion of their education.

When asked if they read recreationally, participant 5 responded that they do not like to read. They find reading to be boring. When they attempt to read, they encounter difficulty trying to visualize what they are reading. They also become sleepy.

Participant 5 did acknowledge, however, that they feel that reading is important. They feel that continued improvement in reading should be pursued. Improvement in grammar and sentences are important, in their opinion, but this is a difficult task. Their ongoing plan for literacy education is to continue with their children in public education, and address concerns if they show up.

When asked about reading with their children, participant 5 described the activity of reading a book with their Deaf child. They would sit opposite the child. They would show the pictures on each page. They would interpret the main ideas and concepts pictured on each page. They would ask questions to check for comprehension. This would be an activity with a child who is an infant to elementary age. When asked how often they sit and read with one of their child, participant 5 reported that they do this around 3 times per month. They added, however, that this is dependent on the child bringing a book home from school to read together.

While the home where the study participants live did not have an abundance of print available, there were captions on the television during each observation. These captions are constantly changing with the dialogue and narration on the television. When asked about captioning, participant 5 was adamant that accurate captioning was an

absolute must in any situation where video media was being watched. They consider this to be an essential right and access to the communication that is provided. They find captions to be good exposure for their children. Even though they cannot read each word contained in the captions, or even read any of the words, participant 5 believes they will understand it in the future. Growing up in an environment with captioned videos will provide the linking knowledge between printed word and spoken communication.

Assessment of Child Participants

TOPEL. The TOPEL, or Test of Preschool Early Literacy was administered to the three oldest children in the home. This assessment is designed to identify preschool age students who are at risk for literacy problems. This assessment is normed with children who are not d/Deaf or hard of hearing.

Participant 1's chronological age at this time was 6 years, 2 months. The setting of the test was in the home of the participants, at a table separated from distractions. The participant was willing and eager to take the assessment. The TOPEL is divided into three sections: print knowledge, definitional vocabulary, and phonological awareness. The print knowledge and definitional vocabulary portions were given. The phonological awareness portion was omitted, as the participant does not use any audition.

The print knowledge portion of the assessment includes 36 questions/prompts, and measures alphabet knowledge and early knowledge about written language. During this portion of the test, the child is prompted to identify letters and written words, point to a given letter, name specific letters, etc. On the print knowledge portion, participant 1 received a raw score of 19. This equates to ranking in the 13th percentile. The descriptive

rating for a child with this score of a similar age is below average. Reasons for a below average score can include limited experience or exposure to print, difficulty recognizing the letters of the alphabet, and limited opportunities to participate in book reading and storytelling activities.

The print knowledge portion of the assessment includes 36 questions/prompts, and measures alphabet knowledge and early knowledge about written language. During this portion of the test, the child is prompted to identify letters and written words, point to a given letter, name specific letters, etc. On the definitional vocabulary portion of the test, participant 2 received a raw score of 44. This score falls within the 3rd percentile. This score has a descriptive rating of poor. Reasons for a poor score in this area include difficulty naming objects that are common, difficulty explaining the function of objects, and lack of stimulation in the home or school environments.

Participant 2 was assessed with the TOPEL on the same day, in the same setting. At this time, participant 2's chronological age was 3 years, 5 months. While more shy and reserved, this participant was willing to be given the assessment. As with participant 1, the print knowledge and definitional vocabulary sections were administered.

For the print knowledge portion, participant 2 received a raw score of 6. This equates to ranking in the 37th percentile. The descriptive rating for a child with this score of a similar age is average. This indicates that the participant's discriminatory ability when presented with letters, pictures, and symbols is within normal limits.

For the definitional vocabulary portion of the assessment, participant 2 received a raw score of 0 which equates to <1% ranking. The descriptive rating for a similar aged

child with this score is very poor. This score could be due to difficulty naming the objects pictured, child factors, or lack of understanding of the prompts being given.

Participant 3 was administered the assessment on the same day, and in the same setting. The assessment requires a baseline of 6 correct responses in a row. This baseline was not able to be obtained, so the assessment for this participant was terminated. Results of this assessment are in Table 2.

Table 2. Assessment results for the Test of Preschool Early Literacy

	Participant 1	Participant 2
Age at time of test	6 years, 2 months	3 years, 5 months
Print knowledge percentile rank	13%	37%
Print knowledge descriptive rating	Below average	Average
Definitional vocabulary percentile rank	43%	<1%
Definitional vocabulary descriptive rating	Poor	Very Poor

EOWPVT-4. The Expressive One-Word Picture Vocabulary Test, or EOWPVT-4 was administered to the 3 oldest children in the home. Color pictures are presented, and the prompt is given to name what is shown. The picture prompts include objects, actions, and concepts. The labeling of vocabulary targets was in sign form for this assessment. This assessment is norm referenced, but the reference is to hearing individuals, not individuals who are d/Deaf or hard of hearing.

Participant 1's chronological age at the time of testing was 6 years, 1 month. The participant was amicable to testing and followed prompts and directions willingly. The participant received a raw score of 40 on this assessment. This places them in the 3rd percentile of same age peers. The age equivalent of a child with the same score is 3 years, 6 months. This means that the vocabulary reflected in this assessment is similar to that of a child who is 2 years, 6 months younger than participant 1. The participant scored well on the portion of the assessment that prompted to label an item. However, when the prompts were to give one word that describes several items pictured, the participant only named one of the pictured items.

Participant 2 was assessed with the EOWPVT on the same day, in the same setting. This participant's chronological age at the time of testing was 3 years, 5 months. The participant received a raw score of 28, which places them in the 25th percentile for same age peers. The age equivalency reflected by this score is 2 years, 7 months. This means that the vocabulary displayed in this assessment is the equivalent of a child who is 10 months younger than the participant. As with participant 1, when the prompts changed from labeling to categorizing items pictured, participant 2 quickly reached a ceiling of achievement. Results of this assessment are in Table 3.

Table 3. Assessment results for the Expressive One Word Picture Vocabulary Test-4

	Age at time of test	Percentile Ranking	Age equivalent	Age Discrepancy
Participant 1	6 yrs, 1 mo	3%	3 yrs, 6 mo	-2 yrs, 6 mo
Participant 2	3 yrs, 5 mo	25%	2 yrs, 7 mo	-10 mo

Brigance Inventory of Early Development III Standardized. Participant 1 was assessed using the Brigance Inventory of Early Development III Standardized, or the Brigance Inventory. The assessment includes norm-referenced/standardized sections and criterion-referenced skill based sections. Within the criterion-referenced section, the early academic skills section was partially used including readiness and basic reading skills. This assessment is appropriate for age birth through 7 years, and the norm-referenced portion of the test was not normed on individuals who are d/Deaf or hard of hearing.

This assessment was administered in the home of the participants. The assessment was a combination of prompts for the participant, and questions related to their skills and abilities. These questions were answered by the parents of the participant during the same assessment session as the prompts were given.

Participant 1 was given the language development portion of the assessment. This includes a receptive language component and an expressive language component. These areas are divided into several classifications including early skills, identifying pictures, following directions, knowing the use of objects, and similar categories. When the prompts were simple, such as “What is this?” participant 1 performed well, correctly naming the majority of pictures presented. When the prompts became more complex, such as “Which one is different?” participant 1 began to struggle and quickly reached a ceiling of errors. This could inform the receptive language abilities of the participant.

For the receptive portion of the assessment, participant 1 received a raw score of 90. This equates to a ranking in the 29th percentile, with a confidence interval of 85-99. The average age equivalent of a child with skills at this level is 3 years, 6 months. This is

2 years, 9 months younger than the chronological age of the participant at the time of assessment.

For the expressive portion of the assessment, participant 1 received a raw score of 111. This equates to a ranking in the 23rd percentile, with a confidence interval of 84-94. The average age equivalent of a child with skills at this level is 4 years, 6 months. This is 1 year, 9 months younger than the chronological age of the participant at the time of assessment.

Overall, in the domain of language, participant 1 received a raw score of 201. This places them in the 23rd percentile, with a confidence interval of 85-93. The average equivalent age range of a child with these scores is 4 years, 3 months. This is 2 years, 0 months younger than the chronological age of the participant at the time of assessment.

Participant 1 was also given the academic skills and cognitive development assessment portion related to literacy. This section of the inventory evaluates experience with books, recitation of the alphabet, visual discrimination of forms/uppercase and lowercase letters, words, etc. A ceiling was reached during this portion of the inventory, so no further literacy sections were administered. The participant received a raw score of 25, which places them in the 2nd percentile. The average age equivalent of a child with these skills is 3 years, 0 months. This score is impacted by the exclusion of the auditory and phonological portions of the inventory. Despite this, the skills displayed by participant 1 are 3 years, 3 months younger than their chronological age.

Participant 1 was given the academic skills and cognitive development portion of the inventory related to mathematics skills. This section of the inventory assesses the participant's understanding of numeric concepts, counting ability, and comparison

abilities. A ceiling was reached in the comparisons portion. As a result, further sections were not administered. For this section, the participant received a raw score of 35, which places them in the 3rd percentile. The average age equivalent of a child with these skills is 4 years, 0 months. This is 2 years, 3 months younger than the chronological age of the participant at the time of assessment.

Participant 2 was also assessed using portions of the Brigance inventory. The participant was assessed on the same day and in the same setting as participant 1. In the area of language development, the participant was given both the receptive and expressive portions of the inventory.

For the expressive portion of the inventory, participant 2 received a raw score of 59. This equates to a percentile rank of 9, with a confidence interval of 89-82. The average age equivalent of a child with the same skill set is 2 years, 2 months. This is 1 year, 4 months younger than the chronological age of the participant at the time of assessment.

For the receptive portion of the inventory, participant 2 received a raw score of 70. This places participant 2 in the 16th percentile, with a confidence interval of 83-87. The average age equivalent of a child with the same set of skills is 2 years, 2 months. This is 1 year, 4 months younger than the chronological age of the participant at the time of assessment.

Overall, for the language development domain of the assessment, participant 2 received a raw score of 129. This score falls in the 8th percentile, with a confidence interval of 74-82. The average age equivalency of a child with these skills is 2 years, 7

months. This is 11 months younger than the chronological age of the participant at the time of assessment.

Participant 2 was also given the academic and cognitive inventory for skills related to literacy. They received a raw score of 4. This places them in the 12th percentile, with a confidence interval of 79-85. The average age equivalent of a child with this set of skills is 2 years, 0 months. This is 1 year, 6 months younger than the chronological age of the participant at the time of assessment.

The academic and cognitive inventory for skills related to literacy was attempted with participant 3. However, the participant had become restless during the testing process. As a result, a baseline was not obtained.

Participant 3 was evaluated using the areas of the Brigance that are relevant to literacy in the context of this study. At the time of assessment, participant 3's chronological age was 2 years, 3 months. Assessment took place on the same day and in the same setting as that of participants 1 and 2.

In the domain of receptive language, they received a raw score of 12. This equates to a percentile rank of 4, with a 78-84 confidence interval. The average age equivalent of a child with the same skill set is 0 years, 11 months. This is 1 year, 4 months younger than the chronological age of the participant at the time of assessment.

In the area of expressive language, participant 3 received a raw score of 17. This is in the 3rd percentile, with a confidence interval of 69-75. The average age of a child with the same skills is 1 year, 4 months. This is 11 months younger than the chronological age of the participant at the time of assessment.

In the domain of language, overall, participant 3 received a raw score of 29. This places them in the 4th percentile, with a confidence interval of 69-77. The average age of a child with the same skills is 0 years, 11 months. This is 1 year, 4 months younger than the participant at the time of assessment. No baseline was established for the academic and cognitive skills related to literacy or to math. These results are presented in Table 4.

CCPSN. Participant 2 was evaluated for skills assessed in the Carolina Curriculum for Preschoolers for Special Needs. This curriculum is an assessment and intervention program that was created for use with children who have some form of disability, which includes deafness. This is a criterion-referenced system that allows for modifications for individuals including the use of sign language. The areas of this assessment administered included those relevant to literacy and the purposes of this study. Skills observed over the course of observations were recorded, and age equivalencies were the result.

In the domain of receptive language, participant 2 appears to fall in the age range of 24-30 months. Skills in this age range that were observed include selecting pictures of actions, and selecting biggest and littlest from a group of three objects. During observations, participant 2 did show some emerging skills in the 30-36 month age range. These skills include pointing to five or more colors on request, and selecting objects by usage. The chronological age of the participant during the observational periods was 3 years, 5 months to 3 years, 7 months. The receptive language age equivalent of participant 2 is 13-17 months younger than the chronological age of the participant. In the domain of expressive language, participant 2 appears to fall in the age range of 24-30 months. Skills in this range include naming six or more pictures of common objects

and using at least 50 different words. For the purpose of this study, signs are counted as words. Participant 2 has been observed exercising emerging skills in the 30-36 month age range. These skills include naming most pictures and line drawings of familiar objects, and repeating new words (signs) to self. The age equivalency of 24-30 months is 13-17 months younger than the chronological age of participant 2 during the time period of assessment.

Emergent Themes

It appears that some relationship exists between several data points. The first theme that emerged across the data relates to literacy in the physical context. The absence of print in the home was observed, discussed in the interviews, and affected the outcome of assessments for the child participants. A print rich environment is known to be an essential component of early literacy. The print within the home was limited to one wordless picture book. The results of this lack of print is reflected in the assessment scores of participants 1 and 2 when given assessments that included early literacy skills related to familiarity with books and with print.

Also present under the theme of physical literacy in the home is the infrequency of shared reading between parent and child. Shared reading was not observed during any of the home observations. During interviews, participant 5 reported that they engage in shared reading very infrequently because of the lack of print in the home, and the difficulties associated with having four young children. Because shared reading is a critical practice that fosters early literacy, and shared reading does not happen in the home often, the results are evident when assessing early literacy and vocabulary skills

Table 4. Assessment results for the Brigance Inventory of Early Development III
Standardized

	Participant 1	Participant 2	Participant 3
Age	6 yrs, 3 mo	3 yrs, 6 mo	2 yrs, 3 mo
Receptive language percentile	29%	70, 16%	12, 4%
Receptive language age equivalence	3 yrs, 6 mo	2 yrs, 2 mo	0 yrs, 11 mo
Age discrepancy	-2 yrs, 9 mo	-1 yrs, 4 mo	-1 yr, 4 mo
Expressive language percentile	23%	59, 9%	17, 3%
Expressive language age equivalence	4 yrs, 6 mo	2 yrs, 2 mo	1 yr, 4 mo
Age discrepancy	-1 yr, 9 mo	-1 yr, 4 mo	-11 mo
Overall language percentile	23%	129, 8%	29, 4%
Overall language equivalence	4 yrs, 3 mo	2 yrs, 7 mo	0 yrs, 11 mo
Age discrepancy	-2 yrs	-11 mo	-1 yr, 4 mo
Academic skills and cognitive development, literacy, percentile	2%	4, 12%	Not given
Academic skills and cognitive development, literacy, age equivalent	3 yrs, 0 mo	2 yrs, 0 mo	Not given
Age discrepancy	-3 yrs, 3 mo	-1 yr, 6 mo	N/A
Academic skills and cognitive development, math, percentile	3%	Not given	Not given
Academic skills and cognitive development, math, age equivalent	4 yrs, 0 mo	Not given	Not given
Age discrepancy	-2 yrs, 3 mo	N/A	N/A

with the child participants.

The final physical element of literacy that appeared across all data points was the presence of subtitles on the television. Subtitles were observed during each observation period, and were discussed in the interviews. During the interview with participant 5, the importance of captions was discussed. The participant said if captions are not available, they do not watch the program. They emphasized the necessity of captioning for full access to the content being watched. This continuous presence of print could impact the child participants' understanding of the relationship between written, spoken, and signed language.

The second category in which themes emerged is the linguistic aspect of literacy. During observations, language was observed between and among all persons in the home. Language was observed, and discussed in the interviews with participants 4 and 5. Language was represented in the assessments of participants 1 and 2. The home was a space rich in visual language. When communicating with each other, parents were models of fluent language exchanges. Parent participants were observed using “Motherese” with the child participants. When communicating, they modified the pace of signing to match the receptive abilities of the child they were communicating with. When teaching a new sign, the parents modeled the sign, referred to the picture or object, then prompted the child to repeat the sign.

This environment seems to contradict the low vocabulary, receptive language, and expressive language scores on the assessment pieces of data for participants 1 and 2. A language rich environment, specifically an environment rich in ASL, would be expected

to foster language development that is similar to the language development of same-age peers. This is presented in more detail within the discussion section.

Participant 1 was observed modifying their communication as well. When communicating with their infant sibling, they signed slowly with exaggerated expression. They also manipulated their sibling's hands to approximate signs. This is evidence of advanced understanding of the receptive communication abilities of another person.

The third category in which themes emerged is the cultural aspect of literacy. The first cultural aspect of literacy that emerged across data points is parental attitude toward reading. This is known to be an important factor in the literacy development of children. When reading carries positive connotation with the parents, the children in the home are more likely to develop early literacy skills and a positive attitude toward reading.

During interviews, participant 5 said that they do not enjoy reading. When recalling reading instruction, they did not relate a positive experience. When this participant does engage in reading, they are often reading a comic book, for which they rely on the illustrations. Conversely, participant 4 does enjoy reading, giving examples of the types of books they like to read. They do not, however, have the opportunity to read often. The effects of this lack of parental modeling can be seen in the absence of print in the home observations, and the infrequency of shared reading. Again, the results of this are reflected in the pre-literacy skills shown in the assessments of participant 1 and 2.

The next cultural theme that emerged was the relationship between the parents and the child participants. This relationship is a crucial element in development of literacy, especially in its earliest stages which take place in the home context. This relationship is important because it fosters language development at the earliest stages.

The parental relationship was observed in the home observations, discussed in interviews, and again observed during assessments. The relationships observed were warm, consisting of caring exchanges between parent and child. This was observed between each parent and each of the children, both separately and as a group. These themes are listed in the Table 5, and an X is placed beside the data points where the themes were present, or where the theme affected the data points.

The final chapter, discussion, will provide further detail of the extent to which these sources of information addressed the research questions presented in chapter 1.

Table 5. Emergent themes based on qualitative and quantitative data

	Physical literacy components	Linguistic literacy components	Cultural literacy components
Observations	X	X	X
Interviews	X	X	
Assessments		X	X

DISCUSSION

The purpose of this study was to investigate the manner in which families who have more than one child who is Deaf and where American Sign Language is the first language play a role in each child's literacy development. The study explored the individual differences among children within a family that may also contribute to the literacy development in the home context. The study assessed the children to gain a normative understanding of the language and literacy development of each child compared to their same age peers.

Research Question One

Research Question One asked: In what ways does family involvement in the literacy process differ when the child is Deaf and American Sign Language is the first language, compared with the literacy process with a hearing child who uses spoken language? This question was addressed in both the home observations and the interviews with the parent participants. Discussion of the results is in the following paragraphs.

Observation of family involvement in literacy in this home where ASL is used differed from family involvement in literacy within a home that uses spoken language primarily in the nature of the language. It is visual language rather than spoken language. Aside from this difference, the literacy and literacy activity participation opportunities for parental involvement and sibling interactions were similar to those in a home that uses spoken language. The family had the opportunity to engage in shared reading, visit a nearby library, and use simple alphabet and reading flashcards.

Despite similar opportunities for literacy interaction, all data points show the impact that the absence of utilization of these opportunities has had on the early literacy skill development of the child participants within the home. The absence of print in the home, which is an outcome of the parental attitude toward reading, results in reduced opportunities for child participants to build early vocabulary and early literacy skills. Additionally, the absence of print in the home causes the opportunities for shared reading to be extremely limited. Without shared reading experiences, the literacy development of the child participants is affected. Because shared reading is a critical practice that fosters early literacy and vocabulary development, and it does not happen in the home often, the results are evident when assessing those early literacy skills with participants 1, 2, and 3.

One difference in opportunities for literacy involvement in this home was related to the continuous presence of subtitles on the television. The television was on during each observation, and the subtitles were always displayed on the screen. While there was no literacy interaction between the parents or child participants during the visit, there was opportunity. During the interviews, the parental participants shared their priority for having captions on. This prioritization of language access may be explained to the child participants at some point.

Research Question Two

Research Question Two asked: What are the factors that impact family involvement in the literacy process when a child is Deaf and American Sign Language is the first language? Data related to this question was collected in both the observation portion of the study, and in the interview portion of the study. The results of the

assessment component of the study could have been impacted by the factors that were observed to affect family involvement in the literacy process.

The factor that impacted family involvement in the literacy process the most was the absence of print in the home used in this case study. Without print resources, such as children's books, there are no opportunities for shared reading between the parents and child participants. During each observation period, no children's books were in the home. When prompted to get a children's book, participant 1 reported that they have no children's books in the home. When participant 6 was asked about children's books, they reported that they have none. When asked about visiting the library for books, participant 6 reported that they do not go to the library because it is difficult to take all of their children together.

Many early literacy skills are developed when interacting with print in the home context. Without this resource, the development of these skills is relegated to contexts outside of the home. This lack of access to age appropriate text impacts the normal developmental timeline for the earliest literacy skills. This informs the assessment results for participants 1, 2, and 3, when tested on vocabulary, receptive and expressive language, and early literacy skills.

The next factor that impacted family involvement in the literacy process was the lack of shared reading. Shared reading is not possible within the home without appropriate reading materials. The lack of shared reading can be seen as a result of the lack of print within the home, which is a result of parental prioritization of reading. Additionally, during the interviews, participants 4 and 5 relayed that it is difficult to sit

with one child and read a book, because the other children frequently interrupt multiple times during the reading.

The next factor that impacts family involvement in the reading process is parental attitude toward reading. The attitudes of participant 4 and 5 were different in regards to reading. Participant 4 reported that they enjoy recreational reading, and gave examples of the type of books they read for fun. Participant 5 reported that they do not enjoy reading. The books they read are primarily comic books, but they rely on the pictures when reading comic books. This impacts family involvement in literacy related activity because when a parent does not enjoy reading, they may choose not to read with their child very often. This was observed to be the case in this study. Participant 5 reported that they do not engage in shared reading with their children often for several reasons, including the lack of enjoyment they have when reading. The absence of this critical activity has caused the literacy and language proficiencies of the children in the home to be lower than their same age peers, despite the language rich environment.

The difference of skills when compared with same age peers is greatest with participant 1. This could be due to the amount of time this participant has been in school, where literacy skills are taught directly. This participant had been in kindergarten for $\frac{1}{2}$ year at the time that data was collected for this study. The participant's skills averaged 24 months behind those of their same age peers. Conversely, participant 2 averaged skills that were 14 months behind their same age peers. This participant, however, began receiving literacy education at the preschool level. These results show the impact that early intervention, which can begin with a child as young as three months old, can have on language and literacy development of children in a home that uses ASL.

Another factor that impacted family involvement in the literacy process was parent-child relationship. A positive, nurturing relationship between the parents and child in the home facilitates the earliest stages of language development which are crucial for the development of literacy skills. The parent-child relationship was observed to be a positive contributor to the language and early literacy development of each of the child participants. This relationship could be a fundamental component of language and literacy learning in the home context, if print was available and shared reading was practiced.

The final factor that impacted family involvement in the literacy process was the presence of interactive language. The parent participants engaged in meaningful language exchanges with each of the child participants, providing information, commands, and explanations with appropriate content for their age and cognitive abilities. Slow speech, and prompts for understanding were used appropriately with each child. Direct instruction of new terms and concepts was observed. Language exchanges were continual among all family members during each observation period. Again, this could foster language and literacy skills with the addition of a print element and sessions of shared reading.

Research Question Three

Research Question Three asked: What is the measure of language and vocabulary, which is an indicator of future literacy competency, for each of the culturally Deaf individuals whose first language is American Sign Language living in a home with culturally Deaf parents and siblings? Data related to this question was collected in the

assessment portion of the study, and related information was gathered in the observation and interview portions of the study. The specific data analysis for each assessment and each participant is provided in the methods chapter. Discussion of the collective data follows.

It appears that there is a relationship between some of the triangulated data points and the assessment results. Lack of print in the home, infrequency of shared reading, and somewhat negative parental attitude toward reading, when combined, result in vocabulary, language, and print awareness skills that are lower than expected when compared to children of the same age in a home that uses spoken language. Each assessment is discussed below.

Lack of print in the home, infrequency of shared reading, and somewhat negative parental attitude toward reading directly correlate with scores on the print knowledge portion of the TOPEL assessment. Participant 1's descriptive rating was below average on the print knowledge portion of the assessment, and their descriptive rating on the definitional vocabulary portion was poor. Participant 2's descriptive rating was average on the print knowledge portion, and on the definitional vocabulary portion was very poor. If the child has extremely limited interaction with print, we can expect their print knowledge scores to be lower than a child who has ample access to print. The average score for participant 2 could be a result of the language and print rich environment in which they attend preschool.

On the Brigance EOWPVT-4, participant 1's scores reflected an age equivalency that was two years and six months younger than their chronological age at the time of the test. This is a significant gap in vocabulary development. Participant 2's scores reflected

an age equivalency of a child 10 months younger than they were at the time of testing. Again, the smaller gap in skills for participant 2 could be a result of early intervention. At the time of testing, both participants 1 and 2 had ½ year of participation in school, participant 1 in elementary school, and participant 2 in preschool. The earlier the intervention takes place, the smaller the skills gap is between the child and their same age peers.

When given portions of the Brigance Inventory, participant 1 had an overall language equivalency that was two years younger than their chronological age. Participant 2 had an overall language equivalency that was 11 months younger than their chronological age. This inventory factors not only vocabulary knowledge, but receptive language. When prompts increased in complexity, the receptive language holes for each of the participants were evident as they quickly reached a ceiling of errors. This lack of receptive language skills seems to contradict the language rich environment of the home. This is an area that warrants further research.

Finally, participant 2 was assessed using the CCPSN. Results showed skills in the age range of 24-30 months, which is 13 to 17 months younger than the participant. This inventory assessed receptive and expressive language skills. Again, this seems to be contradictory to the language rich environment of the home. In such an environment, we would expect the language development of the child to be on par with their same age peers. This is an area that requires further research and assessment.

Implications for Future Research

Further research could bring even deeper understanding of the impact that ASL as

the primary language in a home has on early literacy development. This study could be a starting point for evaluation of effective interventions that support language and literacy development in a home that uses visual language. Understanding the importance of print in the home and its impacts on literacy development is a first step toward understanding the full breadth of the process of an ASL user becoming fully literate. Intervention could begin with provision of print materials for the home, then assessment to measure the impact of the presence of print. Additionally, intervention could include instruction of how to engage in shared reading with one or more children,

Another implication gleaned from this study is related to print in the form of captioning. More research must be conducted to evaluate the place that captions have in the process of learning the link between printed and signed language. Intervention methods using captioning could prove to be effective in a home where ASL is used.

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APPENDICES

Appendix A. Letter of Consent to Participate in a Research Study

Title of Study: A Multi-generational Deaf Family: A Case Study on Literacy

Primary Contact: Rubecca Wilson

417-812-4360

Rw0610@live.missouristate.edu

Principal Investigator: Dr. Karen Engler

417-836-6674

karenengler@missouristate.edu

What is the purpose of this study?

- You are being asked to participate in a study that is researching how the use of American Sign Language influences the literacy development within a family with multiple children who are Deaf.

If I choose to participate in this study, what will happen?

If you agree to take part in this study, you will be asked to allow a researcher to observe you and your family in your home. There will be approximately five observation periods lasting one hour each over the course of ten weeks.

You will also be asked to participate in an interview where the researcher will ask you questions and record your responses. Each interview will take place at a local library. The interview will last no more than one hour.

Your children will be asked to participate in assessment. Assessment will occur in a place agreed upon by you and the researcher. Assessment will occur in two separate sessions lasting no longer than one hour for each session.

All of the observation, interviews and assessment will focus on literacy development and how it is influenced in a home where American Sign Language is the first language. Your experiences and opinions will be requested. You will be free to add anything that you think may be relevant.

If I choose not to participate, or change my mind, what should I do?

- You do not have to participate in the study if you do not want to.
- You can choose to answer only some of the questions.

- You can leave the study at any time.
- You can terminate the observation, interview or assessment sessions at any time.

What are some general things you should know about research studies?

- Your participation is completely voluntary.
- You may refuse to participate—for any reason—without penalty.
- The purpose of research is to gain knowledge that may help people in the future.
- You may not receive any direct benefit from your participation in studies.
- You will be given a copy of this consent form.
- If you have any questions, you should ask the researcher named above.

Who will take part in this study?

Participants will be culturally Deaf family members living in a home where American Sign Language is the mode of communication.

What are the possible risks involved from being in this study?

- Because this study will examine personally identifiable data, there is a risk of loss of confidentiality.
- Extensive measures will be taken to maintain anonymity.

How will your privacy be protected?

All data will be stored on an encrypted flash drive that is kept in a safe located in the home of the investigator. When the flash drive is removed from the safe, it will be kept on the person of the investigator while being used. Immediately after use, it will be returned to the safe. Personally identifiable information will not be present in the final published study. All paper forms that include personally identifiable information will be kept in a locked file cabinet in the locked office of the principal investigator for three years. After three years, the papers will be destroyed.

- Participants will not be identified in any report or publication about this study.
- Any identifying information noted during the discussion will be deleted.
- All handwritten notes will be kept in a locked office.
- All electronic documents created from the notes will be password protected and kept on an encrypted flash drive.
- Paper forms that include personally identifiable information will be kept in a locked file cabinet in the locked office of the principal investigator for three years.
- After three years, papers will be destroyed.
- All electronic data will be kept in a locked file cabinet in the locked office of the principal investigator, Dr. Karen Engler, for three years.
- After three years, electronic data will be destroyed.

Will you receive anything for being in this study?

Upon completion of the study, you will receive a \$100 Visa gift card.

Will it cost you anything to be in this study?

There will be no costs for participating in the study

What if you have questions about this study?

You have the right to ask, and have answered, any questions you may have about this research. If you have questions, complaints, concerns, you may contact the primary contact or principal investigator listed on the first page of this form.

What if you have more questions about research at Missouri State University?

All research on human volunteers is reviewed by a committee that works to protect your rights and welfare. If you have questions or concerns about your rights, or if you would like to obtain information or offer input, you may contact Missouri State's Office of Research Administration at 417.836.5972 or at researchadministration@missouristate.edu

Consent to Participate in a Research Study

Title of Study: A Multi-Generational Deaf Family: A Case Study on Literacy

Principal Investigator: Rubecca Wilson

Name of research study participantDate

Signature of research study participantDate

Signature of Principal InvestigatorDate

Appendix B. Informed assent

CHILD'S ASSENT TO PARTICIPATE IN A RESEARCH STUDY

TITLE: A Multi-generational Deaf Family: A Case Study on Literacy

The study investigator has told you about a research study they are inviting you to be in. They also read and interpreted a paper that tells you all about the study and what will happen with you during the study if you take part in it. You were told you can ask questions about the study any time you want to. Your parent(s) or your guardian(s) was/were present for this.

You were told you don't have to do this if you don't want to.

You were also told you could stop being in the study any time that you want to quit, and that it is okay. You were told that the study investigator might write a report about this study. You were told your name would not be used in the report.

You, _____ (Subject), want to be in the study.

Subject's Signature Date

Parent's Signature Date

Witness Signature Date

Signature of Investigator Date

Appendix C. Interview Questions

Interview Questions

1. Where did you attend primary school? High school? College? [Tell me about your education]
2. Describe the process of learning to read in your experience.
3. Do you read recreationally?
4. What is your attitude toward reading?
5. How important is reading to your children?
6. How often do you read to your children?
7. What do you do to help your children as they learn to read?

Appendix D. Observation Form

Observation Form

<u>Print in the home</u> Print on the wall Print on the TV	
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<u>Children's books/adult's books</u> Types of books Title examples Who reads to whom
--

Children's reading interactions with parents/each other or self			
Code	Initiation	Code	Response

Children's language interactions with parents/each other			
Code	Initiation	Code	Response