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Sign language and gestures in young early childhood

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Abstract

The purpose of this literature and research review is to understand better the use of sign language and the importance of gestures to children in young early childhood. Children, even at the earliest ages, begin the process of effectively communicating with people and the environment around them. The beginning forms of communication originate in the form of body movements, also known as gestures. Sign language has been present in recorded history since the 16th century, and the first written records of it began in the 17th century. Sign language is most widely used with individuals who have hearing or speech impairments, as well as individuals communicating with those who have a hearing problem. When working with young children, either American Sign Language (ASL) can be used, or an adaptation of ASL sometimes called baby sign. There is speculation as to how ASL or baby sign can provide more connections and outlets for communication with young children. Some individuals believe that the incorporation of sign language, either in ASL or baby sign form, causes young children to be inhibited in development of their verbal skills and vocabularies. This literature review attempts to answer five questions regarding the use of gestures and sign language in young early childhood, as well as whether the incorporation of sign language into young early childhood environments is a benefit or hindrance to children in that environment.

SIGN LANGUAGE AND GESTURES IN YOUNG EARLY CHILDHOOD

A Graduate Review

Submitted to the

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By

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ABSTRACT

The purpose of this literature and research review is to understand better the use of sign language and the importance of gestures to children in young early childhood. Children, even at the earliest ages, begin the process of effectively communicating with people and the environment around them. The beginning forms of communication originate in the form of body movements, also known as *gestures*. Sign language has been present in recorded history since the 16th century, and the first written records of it began in the 17th century. Sign language is most widely used with individuals who have hearing or speech impairments, as well as individuals communicating with those who have a hearing problem. When working with young children, either American Sign Language (ASL) can be used, or an adaptation of ASL sometimes called *baby sign*. There is speculation as to how ASL or baby sign can provide more connections and outlets for communication with young children. Some individuals believe that the incorporation of sign language, either in ASL or baby sign form, causes young children to be inhibited in development of their verbal skills and vocabularies. This literature review attempts to answer five questions regarding the use of gestures and sign language in young early childhood, as well as whether the incorporation of sign language into young early childhood environments is a benefit or hindrance to children in that environment.

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CHAPTER 1

Introduction

Children, even at the earliest ages, begin the process of effectively communicating with people and the environment around them. "It is as though the child's desire to communicate is supreme . . ." (Acredolo & Goodwyn, 1988, p. 464). Bonvillian, Orlansky, and Novack (1983) stated that in children's first two years, considerable progress is made in language and motor development. Even with this progress, often communication is limited because children in young early childhood are trying to communicate with adults, whose typical form of communication is verbal language. Young children have not yet developed the ability to verbalize effectively with adults to communicate their wants and needs. Initially, as infants, their only means of communication consists of *reflexive cries* and *vegetative sounds*; young children can utter sounds, but they are not able to manipulate those individual sounds in an articulate way to communicate clearly with words what their wants or needs are at that time. One theory developed by Piaget (1955), is that ". . . gesture and mime-language in movement is the real social language of the children" (p. 77).

Effective communication between children and adults is essential to provide the highest quality and continuity of care. When caregivers know and can understand a child's wants or needs, there is less confusion, and a more

efficient relationship develops. "If they can learn signs for objects and concepts, babies can communicate their needs-*milk*, for example, or *dirty*-rather than simply crying" (Kramer, 2004, p. 24).

Description of topic

The beginning forms of communication originate in the form of body movements, also known as *gestures*. "The average 10-month-old child does not yet produce intelligible speech but does communicate – through gesture" (Rowe & Goldin-Meadow, 2008, p.182). This is most often seen in the form of pointing to or using fingers outstretched towards an object, person, or item the child needs or wants. As an example of this connection between communicating and pointing/gesturing, Butterworth (1997) established that as long as objects are in the middle of children's field of vision, they are more likely to point with their right hand than their left. The child's preference for the right hand may reflect the relative contributions of both sides of the brain's parietal areas. This may suggest connections in the nervous system between areas of the brain that control pointing and those involved in speech perception and production (Butterworth). As children grow they may also begin to add their voice, producing a variety of vocalizations, which cannot be widely understood by others. The strength and majority of their communication still lies in their ability to communicate using manual gestures.

Sign language has been present in recorded history since the 16th century, and the first written records of it began in the 17th century. During this time span in the 16th and 17th centuries, according to Tabak's *Significant Gestures* (2006), the first standardized versions of a signed language were developed and used in Europe, specifically Italy and France. There are different variations on sign language that are found throughout the world. The majority of people who use sign language are individuals who have hearing or speech impairments, as well as individuals communicating with those who have a hearing problem. American Sign Language (ASL) contains the same parts of speech as spoken language, such as syntax and phonology. It is a manual or visual language, meaning that information is expressed, not through combinations of sounds, but through combinations of hand shapes, palm orientations, movements of the hands, arms, and body, location in relation to the body, and facial expressions. While spoken languages are produced by the vocal cords only, and can be easily written in linear patterns, ASL uses the hands, head, and body, with constantly changing movements and orientations (Merriam-Webster, 1998).

Rationale

The purpose of this literature and research review was to understand the benefits and drawbacks of using sign language and the importance of gestures to children in young early childhood, specifically children who are four

months to two years of age. I wanted to do this review because of my interest in the literature involved in learning the place of sign language with children considered normal in their development in young early childhood, as well as my personal investment with children and their parents in the area of child development, specifically young early childhood. In my work as an early childhood educator the topic of using sign language has been prevalent within the classrooms I have taught, and in my communications with parents, especially concerning young children. When using the word *young* in this context I am referring to infants and toddlers or children approximately 4 months to 2 years in age. I refer to this age group as *young early childhood* throughout this review, which also implies I am speaking of children either in a childcare program/facility or children within the care of a guardian.

By reviewing research literature regarding the use of sign language with young children, I located research-based support concerning the use of sign language in young early childhood programs. I also believed there needs to be a search of the literature to find evidence to support the use of sign language with young children, and also to find evidence of detrimental effects of learning sign language on their verbal development. There may also be evidence that sign language and gestures could possibly enhance young children's vocabularies. My goals in this review were to provide evidence concerning substantial benefits of sign

language as a form of communication with young children, as well as to examine any evidence indicating that sign language is a hindrance in the development of young children's verbal skills.

There is positive research that reveals benefits of signing with young children, and that signing can enhance the development of their vocal language. I found no information concerning sign language in regards to standards or benchmarks for early childhood programs. One of the most widely known organizations that initiated standards within the early childhood profession is the National Association for the Education of Young Children (NAEYC). NAEYC was founded in 1926 and is the world's largest organization working on behalf of young children. NAEYC is dedicated to improving the well-being of all young children, with particular focus on the quality of educational and developmental services for all children from birth through age eight. NAEYC is committed to becoming an increasingly high performing and inclusive organization (www.naeyc.org, 2009).

Importance of Review

I believe there is a need for more work, evaluation, and research to study the impact of sign language use in children's development of verbal and nonverbal communication skills. The use of ASL has grown, not only with children who have hearing disorders, but signing also has become a way to communicate with children who have

other disabilities, such as autism and mental retardation. In other individuals with hearing impairments or difficulties, sign language has assisted them in learning how to communicate (Thompson, Cotnoir-Bichelman, McKerchar, Tate, & Dancho, 2007). The use of sign language with young children appeared in the late 1990s and early 21st century, especially after books, such as *Sign With Your Baby* by Garcia (2004) and *Baby Sign: How to Talk with Your Baby Before Your Baby Can Talk* by Acredolo and Goodwyn (2009) were published. When working with young children, either ASL can be used or an adaptation of ASL sometimes called *baby sign*. This label refers to an adapted version of ASL that is utilized with young children because they do not have the fine motor skills or dexterity to use ASL in its standardized form.

There is speculation as to how ASL or *baby sign* can provide more connections and outlets for communication with young children. Some parents with whom I have spoken believed that the incorporation of sign language, either in ASL or baby sign form, causes young children to be inhibited in development of their verbal skills and vocabularies. In my work as an early childhood educator, I have heard some parents state that they believe if children are taught sign language they will become reliant on it instead of their own voice, therefore, delaying the development of children's vocal language. "A concern associated with the early use of sign language is the

potential for a delay in the onset of vocal language. . .” (Thompson, Cotnoir-Bichelman, McKerchar, Tate, & Dancho, 2007, p. 15). On the other hand, in my experiences I have heard both teachers and parents talk about what they believed to be benefits of ASL with their children.

Limitations

There are limitations to this review. I found that within my search parameters there were fewer than 30 studies in regards to sign language use, specifically, in young early childhood with hearing children in comparison to other major language/communication topics that are related specifically to literacy or reading skills. I found at least five studies dealing with how *symbolic gesturing* can have an impact on early language development. For purposes of this paper I am defining *symbolic gesturing* as the use of one’s hands to communicate non-verbally to represent an object, item, or word. For example, in the United States culture, the joining of the tips of a person’s thumb and index finger with the other fingers remaining up, often represents the word *okay*.

Some research findings by Bryen and Joyce (1986) discussed the use and benefits of sign language with older children and specifically with children who may have behavior disorders. Using ASL with hearing children has been more prominent, but limited research has focused on the impact of using sign language with hearing children

concerning their general development (Larson & Chang, 2007).

In my search of the literature concerning sign language use with children in young early childhood, I specifically wanted to limit my findings to publications within the last twenty years. This became increasingly difficult because of the fewer than 40 studies I was able to locate connected to my topic of interest. I did expand my topic search to cover some of the information that was published regarding the benefits of gesturing with young children and the benefits gestures provide to later verbal communication. There was some information that I found, but did not feel comfortable using regarding non-peer reviewed material that did not provide evidence, in support of, or in opposition to, using sign language with children in young early childhood. I chose to exclude non-peer reviewed articles due to the fact that they may not have been as reliable as sources of information.

It was evident in my search that there were certain researchers, such as Acredolo and Goodwyn, who were specialized in and were educated in the use of sign language, whose names appeared more than once. The research regarding my area of interest with this review noted different researchers at different times. In my search I stayed within twenty years, to make sure I was using as up-to-date information as I could. I believe this could be considered evidence of a limitation because while

certain researchers may be specialized in the area of sign language and/or young early childhood, there are a variety who were interested in the area and not any one researcher with more than three studies available. Also, there were some names and information that I simply could not gain access to for various reasons. In some cases, I was unable to access the study or research article in its entirety online. Some articles I was unable to get in original or copied form through the library. This was partially due to the age of some of the research I found and therefore, could be responsible for some of the limited research I was able to locate.

Another limitation I found in my search for information was that I tried to refrain from using too many articles specifically related to the use of ASL with children with disabilities or special needs. The focus I wanted to maintain regarded the benefits or limitations concerning the development of a child without special needs, or who would be considered normal in their development.

Terminology

American Sign Language (ASL)/sign language—the manual or visual language typically used by those with impaired hearing or those wishing to communicate with such individuals (Merriam-Webster, 1998).

Baby sign—an adapted version of ASL that is utilized with young children ages birth to two years of age because they

may not have the fine motor skills or dexterity to use ASL in its standardized form (Garcia, 2004).

Gestures-the motions of one's body, specifically using the fingers, hands, and arms, to communicate wants or needs; can be used to enhance verbal communication (Merriam-Webster, 1998).

Reflexive cries-cries that an infant instinctively emits when in need or distress (Bonvillian et al., 1983).

Symbolic gesturing-the use of one's hands to communicate non-verbally to represent an object, item, or word (Acredolo & Goodwyn, 1988).

Vegetative sounds-sounds made that do not hold any communicative value; unconscious, passive or involuntary sounds (Bonvillian et al., 1983).

Young early childhood-infants and toddlers or children approximately four months to two years in age, either in a child care program/facility, or children under the care of a guardian.

Research Questions to be Answered

In the course of this review my hope was to answer the following five questions in regards to sign language and gestures of *young early childhood* children.

1. How are sign language and gestures used?
2. What are the possible benefits of sign language use in young early childhood?

3. What are the possible drawbacks of sign language use in young early childhood?
4. What are the results of an analysis of the literature concerning sign language?
5. What guidelines are needed to improve the use of sign language in young early childhood settings?

CHAPTER 2

Literature Review

This chapter contains the review of literature and studies I found in my search for information regarding sign language in young early childhood. Even though I found no specific information to support possible drawbacks, the information I did find is discussed first. I then discuss the possible benefits of using sign language in young early childhood. Much of my search for information was through online articles or publications, as well as some use of the archives either available at Rod Library or through interlibrary loan. Often the keywords I used in my search consisted of variations of how to describe young early childhood, such as, young children, infants and toddlers, early childhood, and preschool. I also included the terms of *sign language* or *gestures* in my searches.

Use of sign language and gestures

The use of gestures or our hands to communicate is a trait unique to the human species. Human babies begin to point at about eleven months, according to Butterworth (1997). Camioni, of the University of Rome, found that the earlier babies begin to point and gesture, the more words they know at twenty months of age (cited in Butterworth, 1997). Butterworth (1997), along with Morissette, found that the age at which a baby first points can be a good predictor of that child's progress in understanding language. "Pointing turns out to be more than a means of

reorienting someone else's attention; it is a crucial step on the road to language" (Butterworth, 1997, p. 16).

Even though young children may not be able to communicate with other individuals through vocalizations that are understood within the confines of standard communication, this does not mean that they cannot be understood, or cannot communicate in another way. *Baby sign* allows for that pathway of communication to be opened and connected to another individual, whether it be a parent, teacher, or child. According to Garcia in his book *Sign With Your Baby* (2004), ". . . infants are naturally attracted to movement" (p.18). Young children have better control over their fine motor skills than over their speech. Infants have the mental ability to understand language before they are able to speak, and early on, have more control of their hands than they have of their mouth.

Deaf children born to hearing parents are sometimes not exposed to a ". . . conventional sign language until they are older" (Gentner & Goldin-Meadow, 2003, p. 497). Some children are able to learn and speak if their hearing loss is not severe, but if the hearing loss is so severe that they are not able to acquire any spoken language input, research revealed that children invent or create their own gesture system to communicate with those around them. Despite this invented or self-created system of communication, in most cases, the invented signs or gestures still contained or incorporated the general

structure and characteristics of *natural language* (Gentner & Goldin-Meadow, 2003).

Without the use of *baby signs*, children communicate through gestures. "When infants successfully use a gesture before they can say the corresponding word, they are revealing the fact that much . . . work of learning that word has already been done" (Goodwyn, Acredolo, & Brown, 2000, p. 101). This can be represented by the example of children who point to a ball out of reach and expect to have the ball handed to them. More often than not, if this situation were to occur, the person who responded to the child would most likely use the word *ball* in a verbal reply of some sort, either before picking up the ball (i.e. "Do you want the ball?") or while handing it to the child (i.e. "Here's your ball.").

Possible Benefits of Using Sign Language in Young Early Childhood

There is medical support for the scientific development of a visual language system. According to Garcia (2004), authorities suggested that 90% of the information we absorb is received through our vision. This means visual perception is extremely important in our overall development (Garcia, 2004). Hubert Montagner, a French ethologist, found gestural language is easily read by children nine to twelve months old (Lally, 1990). Crawford (2001) interviewed Marilyn Daniels, who has been conducting research on signing with hearing children for 10

years. When Daniels was asked how sign language use could assist children in acquiring literacy, especially in vocabulary development, she cited one of her own studies in particular. This study suggested that “. . . most language activity is controlled by the left hemisphere of the brain, the use of sign language triggers the brain's growth and increases left-hemisphere activity” (Crawford, 2001, p. 31).

McNeill (2005) believed that the advancement of language itself, at one point, depended quite heavily on gestures. According to his hypothesis, some of the connections in the brain required for language could not have evolved in the way they did without the use and incorporation of gestures. “Gesture . . . is an indispensable part of our ongoing current system of language . . . gestures, as part of the process of speaking, are generated as an integral component” (McNeill, p. 233).

Many educators, parents, or individuals who work with young children on a regular basis can attest to the fact that young children under one year show both the ability and the desire, or need, to communicate with those around them; yet most do not actually produce their first words until at least their first birthday and sometimes not until several months after. Some investigators attribute this delay in functional verbal communication to the

characteristics of vocal development itself (Capirci, Montanari, & Volterra, 1998).

According to this view, because speech production involves the coordination of hundreds of small muscles in the vocal tract, children who are apparently ready to communicate need extra time to work out problems of coordination and articulation before they are able to produce words. (Capirci, Montanari, et al., 1998, p. 46)

Bonvillian, Orlansky, and Novack, in their 1983 publication, discussed several benefits of sign language in relation to language acquisition. Part of the basis for their research was due to evidence stating “. . . the visual cortex matures prior to the auditory cortex . . ., facilitating the onset of a visual language system before an aural-oral system” (p. 1436). They talked of the impact of biological development on communication in that children develop the ability to control their hands before being able to control their own voices. “Motor control of the hands matures before comparable motor control of the voice in young children” (Sperling, 1978, cited in Bonvillian, Orlansky, Novack, 1983, p. 1436). This would provide for even more reason to use sign language in young early childhood, because children are already hard-wired to develop a visual language.

Early gesture use has been linked to later word learning – the more a child gestures early on, the larger

the child's vocabulary is later in development (Acredolo & Goodwyn, 1988). In their 1988 research, they completed a set of studies that provided the first *definitive evidence* that in early development, infants use symbolic gesturing as a means of purposeful communication. Acredolo and Goodwyn used both an interview study and a longitudinal study to gather their information. The interview study included 38 16-18-month-old infants located randomly by birth announcements in the local newspapers. Interviews were audiotaped over the course of one hour with mothers involved in the study, while two independent interviewers kept written records of the mothers' responses. The nonverbal communication described by the mothers was judged to be either *symbolic* or *nonsymbolic*. Gestures were also placed into five sub-categories: object signs, requests, attributes, replies, and events. Overall, 148 of the gestures described by the mothers met the sub-category criteria. They interpreted this amount of gestures as an indication that symbolic gesturing is far from rare and that signs tended to be used on a daily basis and depicted a great variety of objects, desires, needs, and wants.

The longitudinal study (Acredolo & Goodwyn, 1988) was developed to assess accurately the age or means of onset of symbolic gestures or their relation to verbal development. This study included 16 11-month-old infants. During a 9-month period where the children went from 11 to 20 months of age, mothers were asked to keep weekly records of both

nonverbal and verbal behavior. In addition, at 17 months, the infants were seen in a laboratory setting to assess individual differences in ability or likelihood of imitating gestures. At 20 months, a formal estimate of verbal vocabulary was collected, and an interview regarding signing behavior was conducted to clarify information in mothers' weekly reports. Finally, at 24 months, verbal vocabulary size was estimated again and each infant was given a Mental Development Inventory of the Bayley Scales of Infant Development (Bayley, 1993). The whole study covered the 13-month period from 11 to 24 months.

Acredolo and Goodwyn (1988) found that there was a positive correlation between object gesturing and early verbal vocabulary. Part of their hypothesis behind this positive connection was the reasoning that if children were able to successfully communicate with gestures, even if just by using them to label objects, then that child would think ". . . they were 'on to something' with this labeling business and thus speeds along the naming process in the verbal modality" (p.464). When a child in the study had a repertoire consisting of 10-25 vocal words their gesture vocabulary consisted of an average of 31 gestures. Once a child had 50 or more vocal words their gesture vocabulary dropped to an average of two gestures. Gestures or signs were an aid that helped them to communicate better with those around them. "Using gesture in specific ways allows children to express communicative meanings at a time when

they are unable to express those meanings in speech" (Rowe & Goldin-Meadow, 2008, p. 185). The use of gestures or sign language in young early childhood helped children to be understood in a clear and concise way.

Concerning language acquisition, specifically the acquisition of sign language in children of deaf parents, or with close deaf relatives, there has been evidence that the process of language development in sign language is structurally very close to that of spoken language in hearing children with normal hearing parents (Bonvillian et al., 1983). The evidence of the structural significance between sign language and spoken language should give some skeptics the ease of mind that sign language is not as detrimental to a child's verbal development as they may have thought.

Bonvillian, Orlansky, and Novack (1983) conducted a study over the course of a 16-month period with 11 young children of deaf parents. Both mother and father were deaf in seven of the families, one family was a single-parent household with a deaf mother, and one family had a deaf mother and hearing father. The children and their parents were visited for one hour in their homes about once every five to six weeks over the 16-month period. The focus of the study was initially on the development of the seven children under the age of one year but was extended to include a 12-month-old, an 18-month-old, and two older

siblings on whom detailed developmental records of language and motor development were available.

During each visit, the experimenters (Bonvillian et al., 1983) made written records of children's motor skills and of expressive and receptive sign language vocabulary. The parents were encouraged to get their child to produce as many signs as possible, during both structured and unstructured videotape sessions. Parents kept detailed sign language records noting when their child first produced a recognizable sign or sign phrase, in addition to sharing any motoric milestones their child had reached or surpassed in between visits. Any verification of parent records was done by having the children produce signs during home visits and having them videotaped. Once children began to use signs for the first time, most of them made steady and uninterrupted progress in their lexical development, gradually increasing their rate of learning new signs as the study progressed.

The children showed accelerated early language development producing, on average, their first recognizable sign at 8.5 months, their tenth sign at 13.2 months, and their first sign combination at 17 months (Bonvillian et al., 1983). In contrast, children learning to speak typically do not attain the equivalent spoken language milestones until two or three months later. "Children learning to speak typically join two words together at around 18-21 months of age . . ." (Bonvillian et al., 1983,

p. 1441). The structure and content of the subjects' 50-sign vocabularies closely resembled those for children at the same stage in previous studies of spoken language acquisition. Most of the subjects learning to sign did not slow down in their rate of language acquisition after achieving a new motor milestone, but rather continued to show a gradual increase in the size of their sign language vocabularies.

Thompson et al., in her 2007 publication, conducted a study with two infants, both chosen for their tendency to cry often. This was based on teacher and parent information regarding each child. In the study the focus was to replace infant crying and whining with signing. Sign training was conducted in a small therapy room for five minutes, one to four times daily, five days a week. The target sign for one child was a modified version of *please* so that he could ask for what he wanted (toy, help, etc.), and for the other child *up* so he could request to be held or picked up. When the sign training was introduced, crying and whining no longer resulted in the desired response, also known as *extinction*. The results showed a decrease in crying and whining occurred throughout the study, with no crying and whining when the child used signing independently without adult assistance.

One final study was located that examined sign language and the potential for a developmental delay at the onset of vocal language. This study was conducted by

Goodwyn, Acredolo, and Brown (2000), and it showed the potential for sign language to facilitate, rather than hinder the development of vocal language. For their study 103 11-month old infants (58 boys, 45 girls) from a middle-class area were selected and separated into three groups. The first group was the experimental group, which was designated as the *Sign Training group*. The second group was the control. Parents of the infants in the Sign Training group were individually instructed in ways to promote symbolic gesturing by modeling. The parents were instructed to use gestures or motions that made sense to them and were easy to remember. Parents in the control group were not involved in any training and were not aware of the researchers' interest in language. The third group was the *Verbal Training group*. Parents of these infants were to promote the acquisition of verbal language by labeling as many things through the course of their daily interactions with their children as possible.

All the infants from each group were tested at 11, 15, 19, 24, 30, and 36 months, in a videotaped session between mother and infant. A sequence of different assessments or evaluative processes were used, such as the MacArthur Communicative Development Inventory (CDI) (Fenson, Dale, Reznick, Thal, Bates, Hartung, Pethick, & Reilly, 1993), the Sequenced Inventory of Communicative Development (SICD) (Hedrick, Prather, & Tobin, 1984), Receptive and Expressive- One-Word-Picture-Vocabulary Tests (ROWPVT &

EOWPVT) (Gardner, 1985). The results from this study "strongly support the hypothesis that symbolic gesturing facilitates the early stages of verbal language development" (Goodwyn, Acredolo, & Brown, 2000, p. 98).

Possible Drawbacks of Using Sign Language in Young Early Childhood

Larson and Chang (2007) developed a study to investigate the effectiveness of sign language with hearing children of normal development. They were specifically interested in whether or not the use of ASL helped or hindered a hearing child's short-term memory. In their study 33 preschool-age children, with an average age of 4.69 years, were assessed over the span of 4 months. The children were randomly selected for either the control or experimental group. Children in both groups were read the book *Quick as a Cricket* by Wood. In the control group, over the period of 4 months, the researcher read the book to the children in a normal read aloud fashion, using only voice inflection and facial expression while reading. This was done randomly during free time in the classroom and with the children individually for approximately 10 to 15 minutes. The experimental group was also exposed to the reading of the book using the same voice inflection and facial expression as the other group, but had American Sign Language (ASL) incorporated to identify only the adjectives in the book. In order to be intentional in their study, Larson and Chang were specifically interested in whether

ASL would enhance the children's ability to remember only the adjectives in the story.

A pretest was conducted prior to reading the story, to identify if the children had seen or read the book before. During the time where the researcher read the book to the children, the book was only read a total of two times. A posttest was given immediately after the researcher had read the story two times to the group and was aimed at seeing how well the children could recall the adjectives used to describe the animals in the book using their short-term memory. When reviewing their information and a video of the researcher reading to the children, they noticed that children exposed to ASL were more likely to recall the adjectives associated with a phrase that implied the most dramatic effect, such as "*Quiet* as a clam." Larson and Chang predicted the recall for those particular adjectives was due to their dramatic effect and ability to captivate the children, causing them to recall them more accurately. "Perhaps . . . when dramatic voice intonation is combined with dramatic sign language for young children, children's short-term memory is effectively increased" (Larson & Chang, 2007, p. 242). The children in the experimental group did score higher than the control group in their ability to recall adjectives from the book, but the difference between the two groups was not statistically significant. This study was one of the few that showed little to no benefit from the use of ASL, but only in

reference to learning and remembering adjectives. The researchers stated in their findings that there were certain aspects of their study that could have impacted the outcome or could have provided them with further information, such as a larger sample size or the children's level of attention when exposed to the ASL with reading. The length of their study also could have played a large part in their results; had their study been extended beyond four months the results could have been different.

In 1998, Capirci and colleagues developed a study in which they were specifically interested in the production of gestures, signs, and words by children who were learning and exposed to both sign language and speech. The researchers were interested in whether or not there is an advantage in early vocabulary acquisition when sign language is incorporated, whether or not exposure to sign language affects the rate of production of different gesture types, and whether or not there is a sign language advantage for production of communication where two objects or items are combined. For purposes of my review, I was specifically interested in the results relating to the possible benefits regarding vocabulary acquisition where sign language is incorporated.

Their study (Capirci, Cattani, et al., 1998) consisted of observing a hearing child with deaf parents from when he was 10 months old until 30 months, with 45-minute observations taking place each month during the time span.

The child was exposed to both Italian Sign Language (LIS) and spoken Italian from the time he was a young infant. Both parents were deaf, although they were not both fluent in LIS as their native language. The child's father preferred to use only LIS, whereas the mother used LIS, spoken Italian, and a combination of the two for communicating with their child. The childcare providers outside of the child's parents used only spoken Italian to communicate. For a comparison, information from a control group of 12 hearing children (6 boys, 6 girls) who were exposed to only spoken Italian were observed twice; once at 16 months and again at 20 months of age.

All observations were videotaped at the child's home while the mother interacted and played with the child as she normally would. Gestures, signs, and words were considered communicative if they were accompanied by eye contact, vocalization, and/or other clear evidence of an effort to engage another person in the room. Initially the child with deaf parents used more gestures to communicate than words or signs, but by the time he was 16 and 19 months old his words began to surpass gestures. By the time he was 29 months he was producing almost as many signs as words, and his production of gestures had begun to decline. His development of new words and signs initially was slow and was followed by a period of rapid growth that occurred first within words and then in his sign language vocabulary (Capirci, Cattani, et al., 1998).

Even though I found only two research studies showing drawbacks to the use of sign language, factors other than children's experiences may provide difficulties in the implementation of sign language with young children. Those factors are:

1. Time and/or cost to teacher preparation
2. Professional development for practicing teachers
3. Continuity of communication between home and school.

Time and/or Cost to Teacher Preparation and Professional Development for Practicing Teachers

I have found through my experiences as an early childhood educator that continued professional development is something in which educators are encouraged to participate. My experiences as an undergraduate student completing my education began that process of professional development, for my time was occupied with information and valuable training to help me become a well-rounded and capable educator. Education is already an expense that many young early childhood professionals struggle to achieve. Professional development, such as that, could be costly, not only for those participating in it, but also for the organization or individual that was hosting. If a program were developed for educators already in the field it could also be a costly burden for their employers; having to pay for substitute teachers while their regular teachers were participating in an in-service session that would be even

more of a financial responsibility. If the program were to become an inclusive part of a pre-service teacher's education, then additional time in completing the degree and tuition expenses could result. On the other hand, the completion of this training during one's pre-service education would cut down on the cost to employers later.

Continuity of Communication at Home and School.

Parents are generally very concerned about promoting verbalization, and probably both consciously and unconsciously gradually begin to discourage reliance on the gestural modality . . . symbolic gesturing is eventually abandoned in favor of vocalization, but not before it has played an important role in establishing communication between parent and child and yielded researchers valuable insights into the processes underlying language development in general. (Acredolo & Goodwyn, 1988, p. 465)

There is also the fact that once sign language is introduced to a child, if it is introduced in whatever educational environment the child is participating, there is no guarantee that parents will incorporate or support the development of sign language at home. While parents may be aware that their child is exposed to or taught sign language at school, they have the right to do as they wish concerning their child's development outside of school. This decision to not include sign language into a child's daily life could be made by any other individual outside

the scope of a child's school. We all come into contact with others in our communities, no matter how small or large, who behave and do things differently than we do. It would be a difficult task to truly incorporate sign language fully into a young child's life, because one would have to involve every person with whom that child came into contact.

Analysis

In this section I review the studies I found and analyze the data provided by the researchers and their data. I also suggest ways of how the review results may affect current teachers, children, and programs.

The children in Larson and Chang's (2007) experimental group did score higher than the control group in their ability to recall adjectives from the book *Quick as a Cricket* by Wood, but the difference between the two groups was not statistically significant. This study was one that showed little to no benefit from the use of ASL in the classroom, but the researchers also stated in their findings that there were certain aspects of their study that could have impacted the outcome or could have provided them with further information, such as a larger sample size or the children's level of attention when exposed to the ASL with reading. The length of their study also could have played a large part in their results; had their study been extended beyond four months the results could have been different.

Besides the possibility of minimal benefits, a drawback of using sign language in young early childhood could be the need for additional professional development to help educators become proficient in the use of sign language with young children and to understand the importance of communication and developing connections with young children. Early childhood professionals often do not go through a sign language or *baby sign* training before teaching or caring for children full-time, unless such an individual takes initiative to do so on their own. In my own undergraduate work there was no information provided on the use of sign language or *baby sign* with young early childhood children.

Capirci et al. (1998) compared their findings with the individual child with deaf parents to the children learning only spoken Italian at 16 and 20 months. The 12 children from the study were segregated into three subgroups. One subgroup had more words than gestures; a second had more gestures than words; the third had a similar number of gestures and words. At the 16-month mark, the test child was most similar to the children in the third subgroup. By twenty months, the number of children in the control subgroup of more words than gestures had increased from six at 16 months to ten at 20 months. The test child also followed this pattern, producing a much larger number of words than gestures or signs. According to the data

provided there was no evidence in this study that pointed to sign language as an advantage in vocabulary acquisition.

Thompson's study (2007) was done not only to research the enhancement of early communication, but there was also an interesting connection to the prevention of future behavior issues.

Given that children can learn signs as early as 6 months of age, sign training may contribute to the prevention of behavior problems for young children at risk . . . sign training may simply provide an effective means of communication several months earlier than those who rely solely on vocal communication. (Thompson et al., 2007, p. 22)

With more attention and concern being centered on behavior management issues in schools it appears that any tool that can be implemented, such as sign language, would be more widely publicized and incorporated.

Children are always learning and are always ready to learn language. "Children learn language in the manual modality as easily and on the same time table as children learning language in the oral modality" (Goldin-Meadow, 2003, p. 19). No matter what form language takes, whether it be with the hands or the voice, the ways (eyes versus ears) we process the information is quite different. Goldin-Meadow (2003) found in her research that deaf children often *babble* just as hearing children do, only instead of using their verbal capabilities they use their

hands. Not only that, but deaf children started the process of babbling on their hands around the same time that hearing children began to babble verbally. The evidence of the structural significance between sign language and spoken language should give some skeptics the ease of mind that sign language is not as detrimental to a child's verbal development as they may have thought.

Effective communication between children and adults is essential to provide the highest quality and continuity of care. ". . . One advantage of sign language is that signs, like vocal responses, have the potential to specify their reinforcers; thus signing may occasion more effective caregiving" (Thompson et al., 2007, p. 16). This outcome is a benefit for the child and the caregiver. The child is more likely to receive what they want or need accurately. The caregiver can be more effective, focused, and less frustrated.

In my review I was unable to locate any studies that provided clear, firm findings suggesting sign language is detrimental to children's development of early language or verbal skills. My analysis would lead to a conclusion that sign language has slight to pronounced benefits for children in young early childhood.

CHAPTER 3

Guidelines for Facilitating Sign Language in a Young Early Childhood Classroom

There are a variety of programs or initiatives that could facilitate the use of sign language with young children and in young early childhood classrooms. While some, such as providing training or coursework for training in sign language or *baby sign*, may be costly; others, such as implementing *baby sign* through parent or teacher communication and interactions, may not.

Guidelines

1. The first and foremost guideline would be for more educational research to be conducted on the possible benefits or drawbacks of incorporating sign language into young early childhood education.

There is some evidence that supports children's development of fine motor skills before their auditory and verbal skills, but for more support to be provided there first needs to be more evidence. There also should be more research done in working classrooms where teachers already do and do not use sign language in early childhood programs. The research I located was done with children in home or laboratory settings. Creating studies where working teachers participated would provide more evidence about how sign language should be used in a real life classroom situation. This research would provide information, similar

to more medical evidence, which would be more readily considered by parents and teachers alike.

2. There should be more research and medical data to provide more evidence to show either the benefits or drawbacks of sign language use with young children and their developmental growth from a medical perspective.

To involve and encourage more parent interaction, I had hoped to find more support for the use of sign language as a significant aid in language development from a medical perspective. I have yet to find in my research if there is anyone in the medical field, such as a pediatrician, who endorses or encourages parents to use sign language with young children. I believe there would be a certain amount of weight in such an endorsement. Adults trust medical professionals, and the result could be that parents would be more likely to use sign language with their young children if a medical professional were to recommend it.

3. NAEYC should perform further study and research in the area of sign language in young early childhood education.

NAEYC does have standards for accreditation that centers and home providers can follow, but none of their standards specifically incorporate the terminology of or the use of sign language with young children. NAEYC has been studying the benefits of including developmentally appropriate practice (DAP), and for some children, sign language use within or out of the classroom could fall into

that category. NAEYC would also be a key component of lobbying for the more accepted use of sign language, as well as incorporating it into their standards and benchmarks for accreditation for quality childcare programs and facilities.

4. Parents or teachers should implement sign language through the use of *baby sign* or *ASL*, thereby impacting and enhancing communication.

The implementation would depend upon how proficient a teacher or parent would want to be in *baby sign* or *ASL*. The factors of whether or not sign language in young early childhood classrooms would be included depends upon the type of child care setting or program. While most states have certain regulations and rules regarding the business of a young early childhood center or care facility, not everyone is required to follow a certain curriculum. Parents would not be subject to such regulations either. Most of my suggestions for the implementation of sign language may be a somewhat difficult initial transition, but once in place would provide for more consistent communication throughout a child's young early childhood years.

5. There should be development of a curriculum program for use by both childcare centers and in home providers that incorporates sign language into a child's environment.

Another way I believe sign language in young early childhood classrooms could be achieved is through the

integration into a curriculum program. Right now there is not a nation-wide young early childhood curriculum, but there are many states that have statewide early learning standards, including Iowa. The incorporation of sign language into a young early childhood classroom could meet up to eleven of the standards in the IELS. Two such standards as stated in the Iowa Early Learning Standards (Lally, 2006) were Standard 3.3 Social & Emotional Development: "Infants and toddlers develop and maintain positive relationships with significant caregivers" (p. 29) and Standard 4.1 Communication, Language, & Literacy: "Infants and toddlers understand and use communication and language for a variety of purposes" (p. 35).

If that amount of early learning standards were met in Iowa it would be conceivable that other states would follow. Meeting the criteria for social and emotional development and communication through sign language would not only improve communication between children and adults, but would also help a program meet standards set up by the state.

There are also NAEYC standards for accreditation that programs are required to meet which, if sign language were included and implemented, would be beneficial. The benchmark dealing specifically with language development, Benchmark 2.D, within the curriculum standard would gain the most support from the incorporation of sign language. An example of such a connection could be demonstrated with

Benchmark 2.D.03: "Children have varied opportunities to develop competence in verbal and nonverbal communication by responding to questions; communicating needs, thoughts, and experiences; and describing things and events" (NAEYC, 2009, p. 49). Sign language allows for children of varying abilities and ages to communicate nonverbally to make their thoughts, needs, or experiences known. A second benchmark (2.D.05) would also benefit from the support of sign language in a young early childhood setting. The benchmark is stated as the following: "Children who are non-verbal are provided alternative communication strategies" (NAEYC, 2009, p. 49).

6. There is a need for training provisions to be made for pre-service and active, working teachers through coursework or workshops.

Another way that young early childhood administrators could incorporate sign language into children's lives would be to either train pre-service teachers in their undergraduate coursework, or provide training to teachers already in the workforce with training in sign language (either *baby sign* or ASL). This would allow for a better-developed background for educators to implement, as well as to educate and inform parents.

7. The incorporation of sign language into a young early childhood classroom also allows for the exposure to possible bilingual benefits for the children.

"Research has demonstrated that. . . learning two languages is no more difficult than learning one" (Capirci, Cattani, et al., 1998, p. 45). In this study reviewed earlier in Chapter 2, the children being studied were Italian speaking, as well as being exposed to Italian Sign Language. When sign language is incorporated with hearing children, they are not only learning their home verbal language but also a manual language. I have already provided evidence that children from a young age use gesture before they are capable of communicating verbally, and often children continue to use a combination of gestures and verbal communication even after they gain the coordination and developmental skills to speak. "On average the signing children experienced a consistent age advantage in linguistic development over their nonsigning peers, attaining early language milestones several months ahead of children with no exposure to sign language" (Capirci, Cattani, et al., 1998, p. 46).

8. The inclusion of as many individuals as possible in a child's life should be involved in the sign language process.

While I believe that teachers may require more training and experience with sign language or baby signs, there are other individuals that teachers must consider if they incorporate sign language into their classrooms. Those other individuals are parents who have strong opinions about how their child's classroom should look and operate.

In order for the incorporation of sign language or baby sign to be successful in a classroom, teachers would need to find ways to show parents that sign language is a benefit to their child's language learning. This may prove challenging because different populations and parents may require different communicative efforts and different evidence. Some parents may get all the information and support they need from a simple conversation with the teachers, while others would need research evidence provided to them. Other parents may not agree no matter what information they are given.

CHAPTER 4

*Summary, Conclusions, and Recommendations**Summary*

Part of my reason in doing this review was to find evidence of any benefits and/or drawbacks of using sign language with young children. If benefits were suggested, there could be provisions made in either Iowa Early Learning Standards (IELS) or within the standards of accreditation for early childhood programs as set up by the National Association for the Education of Young Children (NAEYC).

For a topic that I value as much as I do, it was disappointing to find few studies in correlation to the specific area of early childhood education, sign language, and young children's development. It was interesting to find the connections between sign language and gestures, as well as the value gestures alone have in a child's verbal and language development. My hope and desire for the future is that more research will be done and analyzed for the possible benefits or drawbacks of sign language in young early childhood.

Conclusions

Through my research I was unable to find a large amount of information representing either support for or against the use of sign language with young children. While I did find 18 articles or studies in support of, rather than against sign language use, I still strongly believe

there is a need for more research to be performed. The use of sign language, especially in a young early childhood classroom setting, could possibly be powerful and provide more readily the evidence to stimulate the process of incorporating sign into young early childhood education as a whole. My first conclusion is that more research needs to be performed.

Infant sign language allows for fine motor skill development and fine-tuning. It also allows for children to make important neurological connections and provides the foundation for development and synaptic connections at a later time. All normally developing infants show some sort of symbolic gesturing in their development, whether they are exposed to sign language or not; whether they are hearing babies or not. This demonstration of manual communication in early development was a consequence of developing motor control (Petitto, Holowka, Sergio, Levy, & Ostry, 2004). In my mind, this supports the inclusion of sign language into a young early childhood setting, curriculum, classroom, or a young child's life because children are already gesturing in their own way and continue to do so in some form or another. While research reveals that children eventually grow out of using gestures, we all know adults who gesture and use their hands when they talk, or when they do not want to say something verbally.

Recommendations

Along with the call for more research, both medical and educational, I believe that more educators and parents would be interested in the value of carrying the use of sign language into preschool ages, children two to five years of age. There are already some studies I found specifically dealing with the use of ASL with children with special needs or disabilities. I did not use these studies for my review because I wanted to maintain focus on children considered to have normal development. The studies showing support for the use of sign language and baby sign provided the evidence that it is beneficial for children in young early childhood, so with more research there could be benefits shown for older children.

The information that makes the correlation between signing, gestures, and the development of early language or vocabulary is an insight that I did not expect to make, but one that certainly makes sense. “. . . The more symbolic gestures the children had included in their communication repertoires by 19 months, the larger their verbal vocabularies at both 19 and 24 months” (Acredolo & Goodwyn, 1988). This statement reinforced the fact that sign language is not detrimental to verbal development or the development of a child’s vocabulary.

Some individuals viewed gestures or signs as replacements for verbal communication or speech. “While gestures can fill in when words fail, gestures mostly do

not have this function" (McNeill, 2005, p. 26). More often than not speech and gestures are connected together, sometimes occurring simultaneously. There is support that they compliment each other more than they hinder. According to McNeill, "Speech and synchronous gestures form a tightly bound unit, capable of resisting outside forces attempting to separate them" (2005, p. 27). Gestures and speech exchange information in the mind and make stronger, more vital connections in the brain. These are the types of connections that enhance language development and literacy later in life for young children.

The one reason I have heard for not using sign language with young children is that a child would then rely on sign language for communication, rather than developing their verbal skills to communicate. Parents are more likely to measure their child's language progress with expressive language. When a parent expresses reluctance to try or introduce the idea of symbolic gesturing with their young child, it is often that they (the parents) believe communicating nonverbally will reduce the child's motivation to do the work of learning to communicate verbally (Goodwyn, Acredolo, Brown, 2000).

After all, each gesture is eventually replaced by a verbal word or phrase. But the fact that a gesture was used initially indicates unequivocally that, in these cases at least, a concept of the object was well

developed before the arrival of the verbal label.

(Acredolo & Goodwyn, 1988, p. 464)

Children are already using their fine motor skills to communicate, regardless of the extent to which it is implemented, or the difficulty of the gesture. Even without the use of an official or adapted sign language, children develop gestures or point to objects that they need or want. Children sometimes use more than their hands or fingers to communicate. They use their bodies to communicate by waving their arms, arching their backs, bouncing, shaking their heads. "When gestures accompany a spoken message, they often *reinforce* the accompanying speech . . ." (McNeil, Alibali, & Evans, 2000, p. 132). We, even as adults, communicate with gestures by pointing, waving, or by *talking* with our hands. "Parents reported that signing was a phenomenon . . . with individual signs continuing only until a comparable verbal label was developed" (Acredolo & Goodwyn, 1988, p. 453). In my search and review I have not been able to find research suggesting children's use or development of gestures in their own form or in the form of sign language to be hurtful to their verbal development and desire to communicate. While I was not able to find an overwhelming amount of evidence in complete support of sign language in young early childhood, there were some valuable connections and meaningful insights. Gestures are closely related to the basic and fundamental movements of sign language. The studies

related to gestures all showed gestures as being a benefit to language and verbal development. There is a connection; sign language in the most basic sense of the term is a form of gesture. That being said the studies reviewed within this paper showed little to no evidence that sign language or gestures would be a hindrance to a child's language acquisition or verbal communication development.

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