Horsing Around? Hippotherapy as a Context for Speech Therapy

A Senior Project submitted in partial fulfillment of the requirements for the Bachelor of Science Degree in Child Development

by

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CHAPTER 1

INTRODUCTION

Language and communication are essential to our daily lives. With it we are able to express our wants and needs without frustration, without it we would not be able to effortlessly engage in the communication that is so essential to our daily lives. Children typically follow a pattern of development that allows them to develop language without delay. Parents expect their children to begin babbling around five months, speak their first words around one year, and have their language mastered around five years of age. A variety of abilities are needed for this mastery, which includes developing an understanding of the phonology (sounds), syntax (grammar), semantics (meanings), and pragmatics (rules of use) of their language.

Unfortunately, a number of issues can arise that delay language development. Each of these has a unique cause and also a unique effect on children. Articulation disorders, fluency disorders, dysphagia, cleft palate, hearing impairment, and cognitive impairments are the most common reasons for speech delay in children. Articulation disorders are seen in children who leave out letters or sounds consistently when pronouncing words (Bleile, 2003). Fluency disorders are seen in children who stutter or are unable to speak with a smooth rhythm. Dysphagia and cleft palate affect the way children swallow, as well as tongue placement within the mouth (Reilly & Ward, 2005). Hearing impairments affect 2 to 3 out of every 1,000 children in the United States (National Institute of Deafness and Other Communication Disorders). Cognitive impairments, such as head injuries and Autism, are diverse but represent the largest source of concern about language development (Miller, 1987).
Intervention approaches can address these issues and correct a child's speech. Some of the more common are speech therapy, articulation therapy, and oral motor therapy. Speech therapy is the general term used to describe therapy aimed at correcting speech. This therapy is usually a communication-based therapy aimed to increase spontaneous language as well as speech accuracy. Articulation therapy is a form of speech therapy based on pronunciation of sounds (Bowen, 1999). A therapist would guide a child through a series of steps, mastering a specific phoneme at a time, such as ‘s,’ and then moving on once that one is learned. Children with hearing delays, cleft palate, or inaccurate tongue placement can benefit from this form of therapy. Oral motor therapy uses tongue, lip, and jaw exercises to strengthen the muscles of the mouth so that children are able to use these muscles appropriately. Each of these therapies is crucial to children with language delays because without correct speech production children are left frustrated and unable to communicate their wants and needs.

A more recent therapeutic option involves the use of horses to benefit the language development of children. Hippotherapy, which is an equine-assisted therapy, utilizes horse movement and licensed speech therapists to facilitated language development in children. Research on hippotherapy reveals that children are more motivated to attend therapy, more involved during therapy session, and have improved language skills following sessions (Macauley and Lombardino, 2004). Riding a horse also requires integration of all body systems and improves muscle symmetry, balance, and respiratory control (Dismuke, 1981).

For this senior project, I observed a nine-year-old boy with autism in two settings, a traditional speech therapy session and an equine facilitated therapy session. My goal was to compare the process of therapy in each setting, and the likely benefits of each option. Due to the calming effects of animals on children, I expected this child to be more willing to communicate while on
horseback (Norman, 2002). My observations of Mike’s behavior in these two therapeutic settings supported my hypothesis; Mike was more willing to communicate and had more spontaneous language use while on horseback than in an indoor therapy environment. Further, in the normal speech therapy setting, Mike refused to complete most work and left the speech therapist dealing with behavioral corrections rather than the intended speech corrections. While observing him on horseback there was no need to focus on behavioral corrections, it was purely a time for Mike to enjoy himself. Of course, these findings are limited to observations of a single child. To better conclude the benefits of hippotherapy more research needs to be done comparing the benefits of hippotherapy and speech therapy for additional conclusions to be made.
The two abilities that children strive to master—speech and language—are often referred to interchangeably, but are very different. Speech is the verbal and technical use of language whereas language itself is the organization and meaning of words or symbols (McNeill, 1968). In this paper, I refer to speech as the actual production of words, and to language as the combination of words to form ideas. The differences between these two aspects of language development are critical to understanding children’s production of language.

Scholarly attention to the critical role of language in human functioning and development has led to large bodies of both empirical and theoretical work on factors that appear to influence language development, the typical course of language development, and atypical developmental trajectories in language learning. Consideration of these topics not only advances understanding of this core human ability, but also contributes to the development of strategies to facilitate language learning for those with delays.

**Typical Pattern of Speech & Language Development**

Preparation for language learning begins before birth and developing babies are much better equipped for language acquisition than many adults think. It has been shown that fetuses are able to perceive sounds in the womb starting at about six or seven months (McGowan, Nittrouer, & Chenausky, 2008). Studies of fetal learning show that newborns recognize and prefer specific input they received prenatally. Research by DeCasper and Spence (2004) found that prenatal auditory experience could influence postnatal auditory preference. Mothers read a daily passage for the last six weeks of pregnancy and then again a week after their infants were
They found that infants would either increase or decrease their rate of sucking in order to attend to the specific story they had heard in the room. This was compared to their rate of sucking while listening to a different story they had not previously heard. Not only do infants’ listening preferences demonstrate their attention to the language around them, but their specific environments also influence their early vocalizations. Mampe, Friederici, Christophe, and Wermke (2004) found that infants’ cries mimic the language intonations of the language spoken around them. For example French and German babies were recorded just days after they were born and their patterns of crying were found to mirror their parents’ language inflections. The French babies typically had a rising melody, whereas the German infants typically had a falling melody; both of these intonations are consistent with the melodies of their native language. It is surprising that infants have enough vocal control to reproduce sound patterns that they first heard in the womb months before they even begin babbling.

During the months after birth, infants engage in a period of observation in which spoken language is observed and processed. Then, around six months, they begin to produce common sounds heard within their language. Canonical babbling is one of the most researched aspects of language development in infants, as well as one of the most significant events in an infant’s first year. Canonical babbling is defined as consonant vowel repetitions like “baba” or “dada” (McGowan, Nittouer, Chenausky, 2008). These sounds are thought to be the first true linguistic utterances produced. Typically developing infants begin this type of babbling between five and ten months of age. This timeline is the same for infants who are learning multiple languages at once, those being raised with low socioeconomic status, and even premature infants. This is significant because words are made up primarily of canonical syllables, so mastery of babbling is needed to develop expressive vocabulary. After babbling occurs, children speak their first words.
around ten to twelve months and then multiple word combinations become evident at eighteen to twenty months (McNeill, 1968).

In order for children to put all of the pieces of their language together they must develop an understanding of phonology, syntax, semantics, and pragmatics. Phonology is the study of how sounds are organized and used in language. Children must learn to segment the stream of speech that they hear and from there distinguish the different sounds within each word. For example, hearing the difference in cat versus cot is an important achievement (McLeod & Bleile, 2003). Syntax then examines the rules of a language and how those rules dictate where words are placed within a sentence. This aspect of language development begins at birth and is usually fully mastered around five years of age (McNeill, 1968). Semantics studies the meaning of words within a language and how these meanings are related to the world around us (Machado, 2010). The combination of phonology, syntax, and semantics along with pragmatics, the effect of context on an utterance, allows children to effectively communicate with language.

Abnormal Speech & Language Development

According to the American Speech-Language-Hearing Association (ASHA), there are a variety of atypical occurrences of language delays that children may experience. A speech delay refers to a delay in the actual production of words, whereas a language delay refers to concerns with the processing or expressive side of language. Both forms of delay can have serious consequences for an individual’s ability to communicate effectively with others. Consequently, interventions are typically called for to help guide children toward more successful language use.

Speech Delays

Articulation disorders. Articulation disorders are one area in which children may have difficulties. This disorder is characterized by difficulty producing sounds and syllables.
appropriately. Words may also be pronounced incorrectly by omitting, substituting, or adding sounds, sometimes to the point where others cannot understand what the child is saying. Many articulation errors are developmental in nature, meaning that some sounds are developed later than others, so children may produce these sounds incorrectly until they mature. For example, the ‘th’ sound is one of the latest sounds to develop. According to ASHA the most common errors children have are with s, l, and r sounds.

Although some articulation difficulty is to be expected in all children, approximately 32% of all diagnosed communication disorders are articulation disorders (Slater, 1992). Further, 75% to 85% of preschoolers with articulation disorders also experience disorders in language development (Shriberg & Kwiatkowski, 1988). This type of delay is due to a combination of factors including normal variation, environmental deficits, or physical damage to the brain or body (Bleile, 2003). Some children may just naturally develop speech abilities slower than others; whereas other children may be in an environment that does not sufficiently support speech development, possibly due to neglect or abuse. Physical damage such as hearing impairment, cleft palate, or attention deficit disorder are some examples of what may cause an articulation disorder.

Fluency disorders. Fluency disorders, such as stuttering, repetitions, or prolonging sounds and syllables are another area of concern for many children. According to the National Institute on Deafness and Other Communication Disorders (NIDCD), it is estimated that more than three million Americans stutter. Stuttering occurs most frequently in young children between the ages of two and six years who are developing language, but most children outgrow their stuttering.
Dysphagia. A third area of speech difficulty is called dysphagia, and involves oral disorders like swallowing and eating processes. This disorder is a serious medical concern as it can lead to aspiration, gagging, regurgitating, or choking on food and saliva. Clearly, a disorder of this nature also makes it extremely hard to produce language. Statistics are unknown as to how many children are affected each year with this disorder. Reilly and Ward (2005) argue that, “Studies of swallowing disorders, their incidence, prevalence, natural history and their consequences need to be designated as research priorities” (p. 204). One complicating factor is that there is little consistency when it comes to the definitions and explanations of this disorder, which makes it hard for researchers to explore this field. Nevertheless, real children struggle with this disorder daily and it is usually up to a speech therapist to assist with their delayed language development and impaired motor skills.

Language Delays

According to ASHA, a language delay can be classified as receptive or expressive. A receptive delay refers to difficulties understanding or processing language. In contrast, children with expressive delays have difficulty putting words together, have a very limited vocabulary, or demonstrate an inability to use language in a socially acceptable way. Both forms of delay can be caused by a variety of factors, as discussed below.

Causes of Speech and Language Delays

Hearing impairment, cleft palate, cognitive or developmental delays, autism, dysphagia, and brain injuries can all play a role in speech and language delays.

Hearing Impairment

When it comes to researching children with hearing loss, it is difficult to compare them equally because hearing loss is diagnosed along a continuum and children fall all over the
Table one depicts the classifications and ranges of hearing loss children may experience.

<table>
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<tr>
<th>Classification</th>
<th>Decibels</th>
<th>What a Child Can Hear</th>
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<tbody>
<tr>
<td>Normal Range</td>
<td>10-15 dB</td>
<td>All speech sounds</td>
</tr>
<tr>
<td>Slight Hearing Loss</td>
<td>16-25 dB</td>
<td>Vowel sounds clearly, might miss some consonant sounds</td>
</tr>
<tr>
<td>Mild Hearing Loss</td>
<td>26-40 dB</td>
<td>Only some speech sounds</td>
</tr>
<tr>
<td>Moderate Hearing Loss</td>
<td>41-55 dB</td>
<td>Almost no speech sounds at a normal speaking level</td>
</tr>
<tr>
<td>Moderate/Severe Hearing Loss</td>
<td>56-70 dB</td>
<td>No speech sounds at a normal speaking level</td>
</tr>
<tr>
<td>Severe Hearing Loss</td>
<td>70-90 dB</td>
<td>No speech and almost no other sounds</td>
</tr>
<tr>
<td>Profound Hearing Loss (Deaf)</td>
<td>91+ dB</td>
<td>No speech and no other sound</td>
</tr>
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Table 1. Levels of Hearing Loss in Children. (Nathani, Oller, & Neal, 2007)

Congenital hearing loss is the type of hearing loss that is present at birth. The serious consequences of this type of hearing loss has driven the recent requirements to screen all infants for hearing loss in order to make sure that the first year of life is full of sounds and stimulation. According to the National Institute of Deafness and Other Communication Disorders 2 to 3 out of every 1,000 children in the United States are born deaf or hearing impaired and 9 out of every 10 children who are born deaf are born to parents who have no hearing loss. Hearing loss in the absence of a nonverbal linguistic environment plays a huge role in the delay of babbling, which leads to a delay in language development. Research shows that hearing impaired children do not begin babbling until well beyond eleven months of age (Iyer & Oller, 1999 as cited in Eilers & Oller, 1994). However, when hearing-impaired children are born into a deaf family where sign language is used as the primary language, children begin babbling with their hands. This language rich environment allows hearing-impaired children to follow the same path of speech...
development as children who babble with their voices (Petitto, 1991). Research has also found that the stability of canonical babbling varies between hearing and hearing-impaired infants.

Canonical babbling with hearing infants is unstable after the first month of development and then levels out, but hearing-impaired infants are very unstable in their babbling for five or six months after babbling begins (Iyer & Oller, 1999). The degree of hearing loss, or even developmental disorders in general, seems to be the most important factor in the delay of babbling. Canonical babbling is usually associated with major developmental delays rather than moderate, meaning more profound hearing loss would cause a larger delay compared to mild or moderate hearing loss (Nathani et al, 2007).

It would seem natural that hearing loss should also inhibit vocalization, but research by Koopmans-van Beinum et al. (1998) has found similar volubility in hearing-impaired infants as well as hearing infants. This means that they found little difference in vocalization even if the infant was hearing impaired. According to Nathani et al. (2007) low socioeconomic status is the only risk factor affecting children’s vocalizations (Nathani et al., 2007, Cited in Oller et al., 1994, 1995). The amount of vocal stimulation in the home affects infant vocal activity level. This vocal activity level is important for language development but research has not taken into account the specific types of vocalizations made, like they have with babbling.

**Cleft Palate**

Cleft palate is a birth defect where the palate of the mouth and/or lip is malformed. A cleft palate is the fourth most common birth defect, affecting approximately 1 of every 700 live births (NIDCD). According to the Cleft Palate Foundation, over half of the children born with this deformation will require speech therapy at some point during childhood. However, many children who are born with a cleft palate develop normal speech by the age of five years.
Articulation delays are the most common delays these children face because the tongue is not able to form the correct shapes on the roof of the mouth in order to articulate each sound. Morris and Ozanne (2003) compared two groups of two-year-old children with cleft palates. Group one had normal expressive language and group two had delayed expressive language, but both groups had delayed speech development. One year later, the children were reevaluated and researchers found that the children who were initially considered to have delayed expressive language had more articulation errors than the group with normal expressive language, even though their expressive language had improved. The children with normal expressive language at the beginning of the study improved tremendously with regards to their speech delay, even without any speech or language intervention.

**Cognitive Impairment**

Cognitive delays due to head injuries, autism, or unknown developmental factors are also a major cause of speech and language delay. A comprehensive discussion of the relationship between specific cognitive impairments and specific forms of speech and language delay is beyond the scope of this project. To illustrate, individuals with Downs Syndrome, a congenital disorder that affects the way children develop mentally and physically. These children typically exhibit delayed speech starting even with their first words (Miller, 1987). Their vocabulary growth is also slow and they have a difficulty mastering grammatical rule, which keeps them from moving beyond basic two or three word phrases. Recent studies have looked into the relationship between delayed expressive speech and comprehension. Miller (1987) studied 56 typically developing children’s expressive and receptive language skills compared to their non-verbal cognitive abilities. Children under 18 months old had comprehension and production skills that were equal to their non-verbal ability. After 18 months the children showed a delay in
expressive language relative to their language comprehension (Miller, 1987). In contrast, children with autism, a developmental disorder that affects brain development, tend to have difficulties with word meaning, sentence meaning, intonation, and rhythm (Layton & Lock, 2003). These children often do not want to make eye contact, are uncomfortable with physical touch, and experience complications learning communication rules, which makes it difficult to effortlessly interact with others. This can affect the way they communicate and learn the language around them (Layton & Lock, 2003).

Therapies for Speech and Language Delays

“Speech and language problems are some of the most common developmental concerns resulting in referral to child health services in the preschool years, often in the first instance to a speech and language therapy services” (Norbury, Tomblin, & Bishop, 2008). According to the United States Department of Education (2002), students with speech or language impairments make up 17.2% of the preschool through 12th grade population. Choosing a type of therapy that is appropriate for the specific child and their needs is the first step in the process of helping children master their language. Typically speech therapists are trained in various types of speech therapy including articulation therapy and oral motor therapy. If a child has a language delay, a therapist would use general speech therapy where the clinician focuses on increasing the child’s vocalizations and word usage. If a child is talking but has delays in speech accuracy, articulation therapy would be appropriate. There are also new therapies on the horizon, which are the focus of this paper, one of them being hippotherapy.

Speech Therapy

Speech therapy is very a very well know and common therapy for children to attend, and is generally very successful in increasing language use in children with delays. Therapists
typically use exercises such as reading books, playing games, or talking about pictures to increase language use. Law, Garrett, & Nye (2004) did a meta-analysis reviewing 33 research articles that focused on the effects of speech therapy intervention on expressive and receptive phonology, syntax, and vocabulary of elementary school-aged children. They found that speech and language therapy was most effective for children with phonological or expressive language difficulties, but not receptive language delays. Further, they concluded that effective treatment was most likely if the duration of therapy was longer than eight weeks.

Articulation Therapy

Another commonly used technique used in schools and private practices is articulation therapy. Approximately 92% of speech therapists have children with articulation disorders on their caseloads that require articulation therapy (Shewan, 1988). This approach differs from traditional speech therapy in that speech therapy has more of a “communication centered” approach whereas articulation therapy is based on pronunciation of sounds (Bowen, 1999). Children with hearing delays, cleft palate, or inaccurate tongue placement can benefit from this form of therapy. With articulation therapy, the therapist guides the child through a series of ordered steps. For example, they may start with one specific phoneme, such as ‘s,’ and then moving on once that one is mastered. Through repetition, each step becomes increasingly complex and eventually, the child uses all of the learned information spontaneously.

Oral Motor Therapy

When a child has a speech delay due to a swallowing disorder due to physical formations of the mouth and throat, a speech therapist uses Oral Motor Therapy, which uses oral exercises to increase the child’s ability to produce language. For example, a therapist may employ facial massage in combination with tongue, lip, and jaw exercises to strengthen the muscles of the
mouth. Even working with different food textures and temperatures allows the child to increase their oral awareness, which assists with the eating and swallowing process.

**Hippotherapy**

Another therapeutic option involves the use of animals to benefit the language development of children. Hippotherapy, which is an equine-assisted therapy, utilizes horse movement and licensed speech therapists to facilitated language development in children.

Riding skills are not taught; instead, the child and therapist incorporate physical and verbal activities to help each child reach their goals. Macauley and Lombardino (2004) reported that hippotherapy sessions used with elementary aged children improved muscle symmetry, balance, and respiratory and motor control of speech. This finding is consistent with an earlier study by Dismuke (1981). In Dismuke’s study, twenty-six elementary school age children with language disorders participated. Eleven children received speech therapy at school and fifteen children received hippotherapy. Results show greater improvement in all language measures for children receiving hippotherapy. Norman (2002) offers an explanation for why horses seem to have such a positive therapeutic impact. “A person’s affect changes how the brain processes information in that, if an activity is pleasant, it is easier to do, and if an activity is unpleasant, it is inherently more difficult” (p. 4). Riding a horse requires integration of all body systems and it is more exciting for children than doing therapy inside a classroom. However, therapy in this context is not all about horse riding. Speech therapists bring traditional activities into the hippotherapy sessions such as letter cards, books, pictures, or pencil and paper. Macauley and Lombardino (2004) found that after hippotherapy sessions, students and their parents reported increased language skills, increased motivation to attend therapy sessions, and increased feelings of self-concept compared to traditional speech therapy sessions. Given the success of hippotherapy with...
delayed speech and language development in children I created a project in which I observed a child in two distinctive speech therapy settings to compare the process of therapy as well as the child’s experiences in each setting.
CHAPTER 3
METHODOLOGY

I completed a small-scale case study of a child who attends speech therapy as well as hippotherapy sessions in order to document the similarities, differences, and benefits of these two therapies.

Participants
The participants for this project were a nine-year-old boy Mike, Linda, a certified speech therapist, and Gina, a therapeutic-riding instructor. Mike was diagnosed on the Autistic spectrum, the exact date is unknown, but he is highly functioning as far as motor control and cognitive ability. He has been attending speech therapy since he was five years old and usually attends twice a week, one hour each session, for a total of two hours a week at MTS Speech and Language Center in San Luis Obispo. His speech therapist, Linda Millar-Smith, works on his spontaneous language, enunciation, and clear communication of his thoughts. His riding instructor, Gina, works at La Lomita Ranch with the therapeutic riding program, Partners in Equestrian Therapy. Mike has been riding with this program for the past year and a half.

Procedure
I first observed Mike at his speech therapy session Friday, May 7th from three o’clock to four o’clock in the afternoon. I used a running record method of observation, which allowed me to keep track of the activities that occurred during session as well as his responses during each activity. I then observed Mike riding on Saturday, May 8th from eleven thirty to twelve o’clock. Again, I kept a running record of what the instructor said to Mike and his responses.
Observations at each location showed the drastic differences that environment could have on a child. While working in a typical speech therapy setting, Mike refused to work for a majority of the session. He would say things like, “No more reading, I quit” or “I want to go home.” When he did work, his overall body language portrayed one of disinterest. His enunciation was poor and the activities he agreed to work on were easy for him. After talking with his speech therapist following the session, I learned that this is a normal occurrence for Mike at speech therapy. In contrast, while observing Mike in the equine setting, his body language was much more still, pleasurable, and focused. He followed all instructions, his spontaneous language increased, and the overall experience was much calmer and more productive than in the traditional speech therapy setting. For detailed notes on the events within each setting, see Appendix A. For pictures of each setting, see Appendix B.
CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

Throughout this project I have come to realize how truly amazing and crucial language acquisitions is for children. For those who are unable to develop language skills appropriately it can cause frustration in all areas of life. Speech therapy is the traditional method for helping children correct their speech and has been successful throughout the years. With newer therapies, like hippotherapy, beginning to enter the field it is necessary that attention be paid to the possible benefits children may experience with alternative forms of therapy.

Research has found hippotherapy to improve speech and language skills while also improving muscle control, balance, as well as attitude toward therapy (Macauley & Lombardino, 2004). My observations of Mike were consistent with these findings. He followed directions, asked as well as answered questions, played verbal games, and worked on general communication skills. Not only did he produce more spontaneous language his posture and overall mood were also greatly improved.

Due to the fact that the observation took place only once in each setting many variables could affect the results. First, Mike may have refused to do work with his speech therapist because of boredom. He has been attending speech therapy in this setting for many years and likely knew what to expect during each session. Second, some activities may have been too difficult for him, resulting in his refusal to try them. The hippotherapy setting avoided these possible negative factors because he was not asked to read letters off of a card or name animals in a picture, therefore he may not associate riding with speech therapy, even though his instructor encourages speech production and language use. Another possibility, and variable in my
observations, is the difference in clinicians. Research by Ebert and Kohnert (2009) suggest that more important than the specific therapy chosen, or the elements within the therapy, seems to be what all therapies have in common, the clinician. Ebert and Kohnert put together an online survey completed by 158 speech therapy clinicians, which asked them to rate the importance of 25 clinician qualities. Results demonstrated that the clinician-client relationship might be most important to treatment outcomes and successful language development in children. Past experiences or personal preference could affect Mike’s behavior during each session. Along with the child-clinician relationship, Law, Garrett, and Nye (2004) have found that parental involvement is extremely important because a speech therapist may only see a child once or twice a week. Parents are central to a child’s well-being and success, so parents should be included in the decision making process as well as extensions of the therapy for practice at home. If Mike’s mom were able to be in the room during therapy session she would be able to incorporate speech activities at home.

In the future more parents, educators, therapists, and doctors need to be aware of the existence of hippotherapy so that it can be considered as a therapeutic option. In addition, more ranches need to offer hippotherapy so children are able to have access to this form of therapy.

Something that most parents don’t know is that most insurance companies cover the cost of hippotherapy session for children with speech and language delays. Because a certified therapist is teaching each session it is classified as a form of therapy, not just horseback riding lessons. Even with insurance companies covering the cost of each session ranches still depend heavily on private donations to cover the care of their horses. In the future, more research needs to be done comparing hippotherapy and speech therapy for a more definite conclusion to be made. I hope that hippotherapy receives more attention from the child development community, researchers, parents, educators, therapists, and doctors.

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and policy makers. With increased funding and recognition more children could have the opportunity to benefit tremendously from this alternative form of therapy.

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APPENDIX A: RUNNING RECORD

Traditional Speech Therapy Session

Mike walked in, sat down in the middle of the room, and began setting up a pirate ship while his mom checked in with the speech therapist, Linda. Once they were done talking Linda collected all of the activities and sat down on the floor with Mike. The first task was “letters” where Linda would hold up a car with a letter on it, she would say the letter, and then he would repeat it back to her. Mike easily said the first five letters and then said, “No more reading, I quit.” Linda continued to prompt him saying things like, “I hear that you don’t want to do this but we have to get our work done.” Making a deal with him to only do five more letters, Mike finished the activity, easily producing each letter she asked him to. The second activity was “word task” where Linda held up a card with a picture on it, she would say what the picture was, and Mike would repeat what she said. This activity brought more refusal from Mike and many prompts from Linda. He was able to easily express that he didn’t want to be there anymore and that he wanted to go home, and Linda’s reasoning about finishing his work and then going home did not make him anymore willing to work. Eventually his mom came in the room and was able to help refocus him and calm him down so he would actually work. Their third task was “naming” where she would hold out a card and he would name what object was on the card. He was able to name each object (guitar, house, witch, monkey) but was still not agreeable to completing the entire activity. The fourth activity was “listening time” where Linda would lay out three cards and ask him to point to the one she said. This task was easy for him to complete and had no refusals. She then made the task harder by saying three picture names in a sequence and he had to point to each photo in the correct order and say the name of what he was pointing at. This activity was met with no resistance and he was able to visually scan each photo and correctly organize and order the tasks that were verbally given to him. The final activity was reading the book, Here Comes the Circus Train. He has read this book before so the words were not difficult for him to read but his volume was low and pronunciation was not sharp.

Hippotherapy Session

My second observation session, at the therapeutic riding ranch, began when Mike arrived at La Lomita ranch. The horse he rides is a Norwegian Fjord named Ettena. These horses are small like a pony but bulky like a horse, which is a perfect combination for a child to ride because side walkers are able to make sure that the child is safe and assist in their movement. Mike got on the horse and walked into the arena, not saying anything to the riding instructor or horse. Gina started the session off with arm circles, ankle circles, and body twists to the right and left. He followed each direction and had a pleasant smile on his face. While walking around the arena Mike spent time looking around at the birds in the trees and the man using a lawn mower. He quietly sat on the horse while he was led in a figure eight pattern around barrels and weaving in and out of cones. Gina asked him how he was doing and he responded, “I’m fine.” They talked about all of the objects in the arena like a ball, hula-hoops, cones, and barrels. She then gave him a choice to walk around the lake at the South end of the ranch and he responded, “Yes, please.” He quickly and calmly responded to all questions asked of him. While approaching the lake Gina asked him what the imaginary sea monster’s name was and he responded, “Steve.” He then reached up to grab some leaves off of a low branch and he smiled showing one of the
volunteers leading the horse. When they got to the end of the trail he told the horse to “turn around” and when the horse tried to put its head down to eat some grass he said, “No eating.” On the way back to the ranch they played a game of I Spy where Mike found a hose, a purple flower, and dog. This was a nice integration of language skills that was a game for Mike but really helped his communication and critical thinking skills. By the end of the session he was overwhelmingly more calm and peaceful. He was patting the horse and smiling to the instructor and his mom. He got off and said thank you to the horse and Gina. There were no refusals and he was very agreeable to all instructions given to him.
APPENDIX B PICTURES OF THERAPY LOCATIONS
One limitation to my study is that the riding instructor, Gina, is not certified in speech pathology so each setting had different goals and methods of working with Mike. Gina has had many years of experience working with children with a variety of delays so she does incorporate many activities that involve speech. Such as following directions, answering questions, playing verbal games, and working on overall communication. As stated before, this was a one-time observation of one child so many variables could affect the experiences and results for other children. ADD MORE LIMITS IN THE SPECIFIC ORDER!!!!

Several factors may account for why Mike refused to do work with his speech therapist. First, he may have been bored. He had been attending speech therapy in this setting for many years and likely knew what to expect during each session. Second, some activities may have been too difficult for him, resulting in his refusal to try them. The hippotherapy setting avoided these possible negative factors. The actiWhile riding he was not asked to read letters off of a card or name animals on a card so he was not
associating riding with speech therapy, even though his instructor was encouraging language use. Mike did have an overall better experience while riding the horse rather than in the speech therapy room. As mentioned before, the focus of his riding was not to work on specific speech drills; instead it was focusing more on overall communication, posture, and the child-animal connection. If the focus was turned more toward the same speech activities Mike experiences in his speech therapy sessions he may start having similar experiences at both settings. Or, the calming effect of riding a horse could maintain his peaceful feelings while working on more traditional speech therapy exercises.

This means that most insurance companies cover the cost of a child attending sessions so parents are not left paying for the cost. From here, parents, educators, therapists, and doctors need to be aware of the existence of hippotherapy. In addition, more ranches need to offer hippotherapy so children are able to have access to this form of therapy.

Horses are extremely expensive to care for so ranches
My observations comparing speech therapy and hippotherapy were a very small case study and only a one-time observation. But from these observations I hope that i