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Morgan Jessica Patterson

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The effect of therapeutic riding on classroom attention of children with developmental
disabilities

By

Morgan Jessica Patterson

A Thesis
Submitted to the Faculty of
Mississippi State University
in Partial Fulfillment of the Requirements
for the Degree of Master of Science
in Human Development and Family Studies
in the Department of Human Sciences

Mississippi State, Mississippi

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The effect of therapeutic riding on classroom attention of children with developmental
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By

Morgan Jessica Patterson

Approved:

Julie C. Parker
(Major Professor)

Lori D. Elmore-Staton
(Committee Member)

Joe D. Wilmoth
(Committee Member)

Tommy M. Phillips
(Graduate Coordinator)

George M. Hopper
Dean
College of Agriculture and Life Sciences

Name: Morgan Jessica Patterson

Date of Degree: August 14, 2015

Institution: Mississippi State University

Major Field: Human Development and Family Studies

Major Professor: Julie C. Parker

Title of Study: The effect of therapeutic riding on classroom attention of children with developmental disabilities

Pages in Study 50

Candidate for Degree of Master of Science

Research indicates children with disabilities benefit from therapeutic horseback riding (TR). This study examined the impact TR had on attention behaviors of five children with various developmental disabilities in a preschool classroom. Children were observed in the classroom setting twice weekly for 10 weeks on a day they participated in TR services and on a day they did not participate in TR. Single case experiments suggested there was not a significant difference in all but one child's sustained attention in the classroom on days children received TR services. An independent samples t-test suggested there was no significant difference in scores between riding day ($M = 1.78, SD = .247$) and non-riding days ($M = 1.76, SD = .262$); $t(87) = -.481, p = .632$ for the group as a whole. Further research should be conducted to determine TR's effect on behaviors in the classroom.

DEDICATION

I dedicate my thesis work to the family, friends, and educators that made it possible for me to get this far. Without the love, support, and push to excel in life from my parents, Brian Patterson and Mishe Simmons, I would not be here today. To the rest of my family who has always supported me unconditionally and prayed for me continually, thank you.

I also dedicate this thesis to the many friends who provided laughs, encouragement, listening ears, and shoulders during the whole graduate school process. To my best friend, Elizabeth Eason, no matter the distance between us, you have always been there and continually reassure me that I can make it. You always show me support, love, and encouragement and I could not have made it through this process without you.

To Ethan, I would not be here without your reassurance, love, and emotional support. Thank you Sunshine for supporting me over the last few years. Lastly, I would like to dedicate this work to God. Thank you for designing me to have a passion and desire to work with children and families. Without Him, none of this would have been possible. Jeremiah 29:11

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CHAPTER I
THE INTRODUCTION

Introduction

In the United States, almost 14% of young children have a developmental disability (Center for Disease Control, 2011). Over the last few years, the number of children with a developmental disability has increased an astonishing 17% (Boyle et al., 2011; CDC, 2011). For children with developmental disabilities, behaviors such as hyperactivity, irritability, and classroom disruptions are often exhibited. These behaviors are typically viewed as unacceptable to those around them (Gabriels, Agnew, Zhaoxing, Clayton, Holt, Ruzzano, & Mesibov, 2012; Green, Itchon, O' Reilly, & Sigafos, 2005; Schmidt, Huete, Fodstad, & Chin, 2013) and to teachers in the classroom. In order to combat some of the unhealthy behaviors exhibited by children with disabilities and to increase attention to daily routines and activities, prevention and intervention methods should be implemented by the age of 4 (Green et al., 2004).

In addition to behavioral issues occurring more often for young children with disabilities, the inability to attend during classroom instruction is often limited. Inattention limits young children's opportunities to learn and engage during the school day (Graziano, Calkins, & Keane, 2011). Therapeutic modalities that address regulation and attention are important for young children with disabilities.

One therapeutic modality that has demonstrated positive impacts for both emotional and physical well-being for children and adults is animal-assisted therapies. Animal-assisted therapies may help the client form strong emotional bonds with the animal (Yorke, Adams, & Coady, 2006). This study specifically considers the impact of the horse-human bond. Equine-assisted therapies have become important therapeutic modalities for children and adults with disabilities. The horse-human bond can become a strong, connected bond as the human develops a relationship and cares for the horse (McCardle, 2011). As part of this bond, physical riding of the horse promotes positive outcomes for the rider. For example, therapeutic horseback riding has been shown to have positive effects on increasing strength and muscle coordination in the rider (Luna, 2009) and increasing attention, focus, and social cognition (Bass, Duchowny, & Llabre, 2009) in children who receive therapeutic horseback riding service). Therapeutic horseback riding is defined by the Professional Association of Therapeutic Horsemanship International (PATH) as "... an equine-assisted activity for the purpose of contributing positively to the cognitive, physical, emotional and social well-being of individuals with special needs" (PATH International, 2015). Not only are horse-human bonds formed, but mentor bonds are created with those who help a child ride (Westerman, Stout, & Hargreaves, 2012). Children who ride for therapeutic benefits see increases in skills not only during the time of riding but also in other aspects of their life, such as in the classroom or at home (Garcia, 2010; Luna, 2009).

One benefit of therapeutic horseback riding indicated in the literature is an increase in attention (Bass et al., 2009). Sustained attention as defined by this study is "the ability to direct and focus cognitive activity on specific stimuli" (DeGangi & Porges,

1990). Attention is a forerunner to children developing optimally (Spalding, Plante, & Vance, 2008). Sustained attention plays a role in the holistic development of a child including cognitive, emotional, and psychological aspects (Graziano et al., 2011). If children are engaged and sustained attention is taking place, learning is more likely to occur. However, if children are incapable or have consistent problems with sustained attention, there may be many negative outcomes. These outcomes often do not remain just in childhood but continue throughout the span of the child's life (Graziano et al., 2011).

For the remainder of chapter one, the statement of the problem is given to provide information regarding the potential benefits therapeutic horseback riding has for children with developmental disabilities. The purpose statement, as well as the major research question, addresses the need for further exploration of how therapeutic horseback riding may have an impact on the attention of children in the classroom setting. Of note, there is limited empirical evidence on the benefits that stem from therapeutic horseback riding experience (Kaiser, Spence, Lavergne, & Bosch, 2004), thus background information is provided on why this study is significant and needed. Finally, a theoretical framework is provided to help explain the impact and outcomes of therapeutic horseback riding.

Statement of the Problem

Children with developmental disabilities often exhibit behaviors that are not beneficial to themselves or socially acceptable to those around them. These behaviors can include self-injury (Gabriels et al., 2012), disruptions, hyperactivity, and irritability (Green et al., 2005; Schmidt et al., 2013). Though negative behaviors and an inability to sustain attention may be exhibited in children with developmental disabilities, therapeutic

horseback riding may promote better regulation, thus increasing attention for these children. These increases may include but are not limited to enhancement in sensory stimulation (Bass et al., 2009), self-efficacy (Cuypers DeRidder, & Strandheim, 2011) and communication skills (David, 2007). While there is an understanding that children with developmental disabilities have the opportunity to benefit from therapeutic horseback riding, there is also limited research that has been conducted to measure its true effectiveness (Holmes, Goodwin, Redhead, & Goymour, 2012).

Although numerous benefits of therapeutic horseback riding have been documented in literature through observation and qualitative report, limited empirical evidence has been generated to demonstrate specific gains in psychosocial development for children with disabilities (Holmes et al., 2012). This may be due to a lack of validated measures, control groups, or experiment biases. The lack of empirical evidence may be credited to the variety of disabilities treated with therapeutic riding as well as the comorbidity of variables. The benefits of animal-assisted therapies, including therapeutic horseback riding, have the opportunity to emerge as well-defined therapeutic interventions with more empirical work from human science researchers. Human science researchers are familiar with the process of human development. They understand the developmental levels and needs of riders in comparison to their ages and disabilities. Children engaging in their therapeutic riding services with volunteers have the opportunity to make the same gains from horseback riding as they would when riding with a certified professional or researcher. Since many programs run on volunteer help, this limits the opportunities for professionals to capture empirical evidence in the area of therapeutic horseback riding. In addition, the environments where therapeutic horseback riding takes place, under the

supervision of therapeutic riding instructors, often do not have researchers there to explore the possible benefits to students (Holmes et al., 2012). In order to understand the positive outcomes therapeutic riding can have on attention behavior of children with developmental disabilities, research that address the effectiveness of therapeutic riding on children with developmental disabilities is needed (Gabriels et al., 2012).

General Background of the Problem

For nearly 300 years, animal-assisted therapies have taken place across the world (Holmes et al., 2012). It was not until the 1960s that these therapies began being documented and researchers were able to see the benefits of animal-human interactions (Holmes et al., 2012). Working with horses provides opportunities for addressing psychological and physical needs of the rider (Favali & Milton, 2010). First, horses are able to sense and respond to the emotional needs of their rider (Freund, Brown, & Buff, 2011), as horses are receptive to those around them and are able to accommodate the needs of those who interact with them (Yorke et al., 2006). The literature also indicates horses have the ability to positively influence the emotions of their riders, which can in turn improve the physical and mental state of the rider (Garcia, 2010). Participants in equine-assisted therapy may work through various issues such as, helplessness, isolation, dependence and intimacy as a way to improve their mental status (Barnes et al., 2008). Additionally, physical improvements for riders are noted in the literature (Luna, 2009). Those who participate in therapeutic horseback riding have the opportunity to strengthen themselves physically. Improvements can be seen in strength and coordination as well as balance and flexibility as a result of the posture a rider must maintain during horseback riding sessions (David, 2007). Some suggest that horseback riding stretches and moves

muscles in ways that other exercises do not have the capabilities of doing for a rider (Flavali & Milton, 2010). Not only are there physical benefits of therapeutic horseback riding but emotional benefits as well (Flavali & Milton, 2010).

In other developmental domains, research has indicated that therapeutic horseback riding also promotes communication and language development (David, 2007). For example, during therapeutic riding sessions, riders say specific commands to the horse, and they also play games that require oral language. All of these opportunities, plus the relationship that evolves between the rider and horse, promote language acquisition and skills.

Riders also have the opportunity to develop self-efficacy during their sessions (Westerman, Stout, & Hargreaves, 2012). Self-efficacy occurs when the rider develops enough horsemanship skills to ride independently and to care for his or her horse independently. This independence can be particularly important for building self-efficacy in riders with significant disabilities as they can command and guide the horse (Woolley, 2014). Therapeutic horseback riding also links the rider with a mentor. The child and the mentor have the opportunity to develop a supportive and affirming relationship, thus positively impacting social and emotional development (Westerman et al., 2012). These outcomes can be important for children with disabilities as they enter collaborative relationships at school and engage in cooperative activities.

As previously indicated, there are many benefits of therapeutic horseback riding, both physical and mental, for the rider. For children with autism, an increase in focus and attention have been observed after participating in therapeutic riding (Bass et al., 2009). This study measured attention and focus using the Social Responsiveness Scale

and Sensory Profile, as well as pre and post-assessment data collected from parents to determine an increase in focus stemmed from therapeutic riding services (Bass et al., 2009). Ideally, therapeutic horseback riding for children with developmental disabilities will mold negative behaviors into more positive behaviors. The relationship the human forms with the horse can impact how the human performs in other environments, such as school, work, or home (Garcia, 2010).

While the benefits of therapeutic riding have been noted to exist, there is still much more research needed to establish an empirical foundation supporting the outcomes for riders (Holmes et al., 2012). In a recent meta-analysis of animal-assisted therapies as a whole, only about 3% of research studies reported were considered valid (Holmes et al., 2012). . In order to increase validity of research with animal-assisted therapy, methods of experimentation with limitations on biases should be conducted (Holmes et al., 2012).

Purpose of the Study

The purpose of this study is to compare the differences in attention behaviors in young children with disabilities during normal classroom activities under two conditions, (1) days that they participated in therapeutic horseback riding; (2) days they did not participate in therapeutic horseback riding. The study will capture observations of each participant during normal classroom routines and document the level of attention during five minute intervals throughout the observation period.

Additionally, this study is exploratory in design. Exploratory research design does not aim to provide the final and conclusive answers to the research questions, but merely explores the research topic with varying levels of depth. “Exploratory research tends to tackle new problems on which little or no previous research has been done” (Brown,

2006, p.43). Moreover, it has to be noted that “exploratory research is the initial research, which forms the basis of more conclusive research. It can even help in determining the research design, sampling methodology and data collection method” (Singh, 2007, p.64).

Significance of Study

One in ten children has some type of developmental disability severe enough to cause some level of impairment (Barnes, Vogel, Beck, Schoenfeld, & Owen, 2008). These children often have trouble with school and regulating behaviors (Barnes et. al, 2008). Additionally, children with developmental disabilities can exhibit hyperactivity, disruptive behaviors, challenging behaviors, and lower school productivity (Lynn, Carroll, Houghton, Cobham, 2013). These behaviors can be harmful to the child and are generally not socially acceptable to those around the child (Gabriels et al., 2012; Green et al., 2005; Schmidt et al., 2013).

Therapeutic horseback riding can have positive social and emotional impacts on a child receiving services in addition to other benefits. As previously mentioned, sustained attention is one of the benefits a child may demonstrate after participating in therapeutic horseback riding (Bass et al., 2009; David, 2007). By increasing sustained attention, learning is more likely to take place for the child. If sustained attention is not achieved by a child, there are many negative impacts including negative social behaviors and poor health outcomes (Graziano et al., 2011). These issues not only take place during childhood but throughout a child’s life. For this reason, finding ways to help a child develop sustained attention is important to his or her healthy development and well-being (Graziano et al., 2011).

To our knowledge, no studies focusing on how therapeutic horseback riding affects sustained attention in a preschool classroom setting have been published. In the future, to understand the outcomes that therapeutic horseback riding can have, including the classroom setting, validated research must be conducted (Gabriels et al., 2012). While some data have been collected on the physical benefits of therapeutic horseback riding, psychosocial effects are not well documented. One study indicates that, since it is “known” that horses are successfully used as a therapeutic modality, it is hard to gain support from granting agencies to study therapeutic horseback riding (Kaiser et al., 2004). Additionally, staff members in therapeutic horseback riding centers often vary from staff to volunteers, which may limit the opportunities for data collection and research. Research suggests animals play a valuable part in the psychosocial development of children; therefore, studying the value of therapeutic horseback riding and its opportunity to impact children psychosocially is important (Kaiser et al., 2004). This study is designed to focus on how therapeutic horseback riding can impact sustained attention of young children with disabilities in a preschool classroom setting.

CHAPTER II

LITERATURE REVIEW

Introduction

On average, 14% of children in the United States have some form of developmental disability (Boyle et al., 2011; CDC, 2011). Out of these numbers, 0.47% have autism, 6.65% have some type of developmental delay, and 7.66% have learning disabilities. The number of children with developmental disabilities has increased significantly (17%) over the last 12 years (Boyle et al., 2011). Autism tops the charts with a 289.5% increase over the last 12 years (Boyle et al., 2011; CDC, 2011). With such steady increases in developmental disabilities, understanding how children with developmental delay or disabilities behave is crucial to helping them develop in all domains.

Children with developmental disabilities often exhibit behaviors that are not productive or socially acceptable to those around them. These behaviors can include self-injury, disruptions, hyperactivity, and irritability (Gabriels et al., 2012; Green et al., 2005; Schmidt et al., 2013). Approximately one in ten children has some form of developmental delay or disability that, in turn, causes some type of impairment (Barnes et al., 2008). Typically, children with some type of emotional disorder have a co-diagnosis of a developmental delay or disability, which brings other problems such as self-regulation, attention, and trouble processing sensory experiences (Barnes et al., 2008).

These behaviors can cause disruptions in the classroom and cause retention rates in school to be higher for these children (Lynn et al., 2013).

In order to understand the connection between therapeutic horseback riding and attention in a classroom for children with developmental disabilities, Sensory Integration Theory will be used to frame how therapeutic horseback riding assists young children in processing sensations from the movement of the horse and the environment, thus using the experiences to plan and organize behavior.

The Theory of Sensory Integration as described by Ayres (1972) explains “the neurological process that organizes sensation from one’s own body and the environment and makes it possible to use the body effectively within the environment” (p. 11).

Sensory integration explains the connectedness of the brain and behavior of a person and how he or she responds to sensory stimulation to affect behaviors. Additionally, sensory integration uses the vestibular sense which affects movement and balance and the proprioception sense that affects joint and muscles (DiMatties & Sammons, 2003).

Vestibular sense provides the body information about the head and body and their relation to earth’s surface. The proprioception sense tells the body what different body parts are doing (DiMatties & Sammons, 2003). When the body uses all of the senses together, positive behaviors including sensorimotor skills, socialization, attention, and behavioral regulation can result (May-Benson & Koomar, 2010). In order to receive the benefits from sensory integration activities, therapists often educate families and teachers on how to create strategies for helping adapt or modify environments, routines, or interactions with a child in order to better control sensory input (DiMatties & Sammons,

2003). Through therapeutic riding children have the opportunity to capitalize on some of the benefits of Sensory Integration therapy.

Therapeutic riding engages riders in actions that will involve all of their senses. For young children, all senses need to be engaged to create the most beneficial environment for learning. When young children have authentic sensory learning experiences, the information is recognized, processed, understood, and stored in the brain (Ayers, 1979), thus providing a holistic experience. When these experiences are properly processed, it helps young children to complete the task at hand and learn from the experience. For a child who struggles with a dysfunction of sensory processing (Bundy, Lane, Fisher, & Murray, 2002), he or she may demonstrate an inability to organize or concentrate, maintain self-control, attend to tasks for appropriate periods of time, and regulate behaviors (Knox, 2005; Lane, 2005).

During therapeutic riding, proprioceptive senses (i.e., how the body is moving) are engaged when exercises (e.g., maintaining stability on horseback while passing a ball from one hand to another) are performed. Information is sent to the brain about coordinating both sides of the body and crossing the midline, which indicates that the brain and body are working together (Granados & Agis, 2011). Sensory integration takes place in the therapeutic riding setting when the tactile sense is stimulated during the riding process. Movement of the body that occurs from riding the horse can stimulate the vestibular system. When the horse changes its speed or direction, the body sends signals to the brain for processing the changes. Auditory, olfactory, tactile, and visual awareness also are found in the therapeutic riding setting collectively, providing for a rich sensory

experience. When all of these varying senses work together, the most positive benefits occur (Granados & Agis, 2011).

The Role of Therapeutic Horseback Riding for Children with Disabilities

In order to effectively assess the psychosocial benefits of therapeutic horseback riding for young children with disabilities, the impact of therapeutic riding on classroom attention should be considered. To better understanding the impact therapeutic horseback riding has on children's attention in a preschool classroom during routine activities, observations that measure attention behaviors are necessary. Additionally, sustained attention in the classroom setting should be assessed on an individual basis to determine individual outcomes as per different disabilities.

Therapeutic Riding

Characteristics of a Good Horse

Research suggests that horses have had therapeutic value for people dating back to the 18th century. These relationships have been seen as advantageous to a human's health and well-being (Favali & Milton, 2010). There are several factors that are important when selecting horses for therapeutic activities and relationships. First, horses are able to read and respond to the emotional needs of a rider (Freund, Brown, & Buff, 2011). Horses are viewed as accommodating and receptive to those around them (Yorke et al., 2006) and can positively impact the mood of a person working with them. The idea that horses can bring about positive changes in people with disabilities starts with looking at the positive characteristics horses can bring to an equine-human bond (Yorke et al., 2006).

Equine–Human Bond

Research suggests that therapeutic value can be seen in human–animal bonds (Yorke et al., 2006). Relationships between humans and horses are rooted in a deep connectedness formed by care and physical contact that spawns from riding and caring for the horse. Horses have the ability to positively influence the emotions of the riders to help them improve their own mental or physical states (Garcia, 2010). Rapport and understanding form between rider and horse when the rider has the opportunity to care for the animal (Yorke et al., 2006). Additionally, the equine–human bond can have roots in a spiritual connection (Garcia, 2010). All of these work together to provide positive effects for the rider.

Physical Effects

By participating in therapeutic horseback riding, riders may see an increase in strength and coordination (Luna, 2009). Balance and flexibility can be improved through horseback riding because of the required posture stability necessary when riding the horse. Riding closely simulates a person’s own gait, which allows for the strengthening of muscles to take place for the rider (David, 2007). Some authors note that spasticity can be decreased when riding as the riding stretches and utilizes muscles in a way other exercises are not capable of performing (Flavali & Milton, 2010). Not only are physical benefits observable, but emotional benefits are found in therapeutic horseback riding as well (Flavali & Milton, 2010).

Social-Emotional Effects

One of the most important benefits of therapeutic horseback riding is its capacity to influence social-emotional aspects of children's development. Therapeutic horseback riding not only increases strength and coordination but also socialization through communication and regulation (David, 2007). The literature also indicates horses have the ability to positively influence the emotions of their riders, which can in turn improve the physical and mental state of the rider (Garcia, 2010). Additionally, a sense of connectedness is formed between the riders and mentors of a program. These connections provide an additional opportunity for the rider to develop his or her own strong feelings of self-efficacy during the sessions (Westerman et al., 2012).

Therapeutic Horseback Riding Benefits as a Whole

Therapeutic horseback riding provides a unique opportunity for children to improve their emotional abilities (Yorke et al., 2006). Through therapeutic horseback riding, children have the opportunity to learn how to adjust their arousal level (Luna, 2009), thus providing more regulation for academic and functional tasks. Riding a horse can help the body sense the connection and engage the intuitive skills of a person, allowing them to gain higher levels of attention and awareness (Garcia, 2010).

Understanding how the body can work to decrease negative behaviors is important to gaining emotional regulation and increased attention through therapeutic horseback riding. Therapeutic riding has the opportunity to help decrease some negative behaviors by bringing about changes in social cognition, attention, and focus in children who may not have shown these skills without therapeutic interventions (Bass et al., 2009). Therapeutic horseback riding also can result in increasing balance, developing

stronger muscles, and helping children learn how to communicate better (David, 2007). Children who ride for therapeutic benefits see increases in skills not only during the time of riding but also in every aspect of their life, such as in the classroom or at home as well (Garcia, 2010; Luna, 2009).

Emotional Regulation in Children with Disabilities

Behaviors Exhibited

Children who have emotional or behavioral difficulties often have trouble regulating their emotions as compared to their typically developing peers (Lynn et al., 2013). These children exhibit hyperactivity, disruptive behaviors, lack of focus, and challenging behaviors. They typically make lower grades than other children and as a result have higher retention or incompleteness rates (Lynn et al., 2013). Some children have disabilities, such as autism, that cause them to develop aberrant behaviors, thus reducing attention in the classroom. These behaviors are often developed early in life, before age four (Green et al., 2004). Aggression, self-injury, and tantrums are highly characterized by the intellectual disabilities that cause aberrant behaviors and decreased attention (Green et al., 2004; Schmidt et al., 2013). Regulation and sustained attention are important for children who struggle with challenging behaviors.

In order to combat some of the unhealthy behaviors exhibited by children with disabilities, prevention methods should be implemented by the age of four (Green et al., 2004). As previously mentioned, there are many benefits from therapeutic horseback riding, both physical and mental. For children with autism, focus and attention can be challenging, but significant differences have been observed after participation in therapeutic riding (Bass et al., 2009). Ideally, therapeutic horseback riding, for children

with developmental disabilities and inattentive behaviors, will influence these behaviors and promote more positive outcomes. The relationship the human forms with the horse and the sensory integration experience of riding the horse are thought to impact changes in a person's behavior (Garcia, 2010).

Attention

Attention is a forerunner to children developing optimally (Spalding, Plante, & Vance, 2008), as it plays an important role in memory functioning. Up to 40% of children have shown attention problems that concern teachers or parents by the age of four (Mahone & Schneider, 2012). Sustained attention as defined by this study is “the ability to direct and focus cognitive activity on specific stimuli” (DeGangi & Porges, 1990).

Attention is a series of neurological processes that develop quickly over the early years of childhood. During these years, children gain the ability to focus on, engage with, and respond to a stimulus over a period of time (Mahone & Schneider, 2012). Sustained attention plays a role in the development of cognitive, emotional, and psychological functioning (Graziano et al., 2011). Attention control in preschoolers is said to have a wide range of factors that influence it, including genetic, temperament, and environment factors (Mahone & Schneider, 2012). By age two, a child begins to develop control of his or her attention, and sustained attention is formed. At this time, a child gains the ability to focus on a certain stimulus. When engagement and attention occur, learning is more likely to take place. A decrease in distraction is more likely if sustained attention is being enacted by the child. Physiologically, there are decreases in heart rate and heart rate variability when children are more engaged (Graziano et al., 2011).

While there is a large role in development of a child that comes from sustained attention, impairment in attention is predictive of negative outcomes. These negative outcomes can include poor social outcomes, health behaviors, and occupational impairments (Graziano et al., 2011). If attention is not able to be sustained in early childhood, the impact tends to roll over into adolescence and adulthood. Poor social skills continue on through this time period as well as an increase in emergency medical visits (Mahone & Schneider, 2012). Coupled with Attention Deficit Hyperactivity Disorder (ADHD) inattention can cause increased depression and suicidal behaviors (Mahone & Schneider, 2012).

There are many key factors used to explain decreased sustained attention including genetic, child factors, and socioeconomic status; however, this is not an exhaustive list (Graziano et al., 2011). By identifying and treating attention problems early in life, negative effects may be minimized. However, distinguishing inattention in its many forms including causes such ADHD and other difficulties at the preschool age is another issue to address (Mahone & Schneider, 2012).

Conclusion

The benefits therapeutic horseback riding can have for a rider are numerous. Physically, children have the opportunity to improve muscle strength, which increases balance, coordination, and stability (David, 2007). The additional provision of giving children a sense of community and connectedness helps them to develop self-efficacy. The connectedness children find in their mentors allows for a child to become confident riders (Westerman, Stout, Hargreaves, 2012). Children may begin developing sustained attention when receiving therapeutic riding services because the experiences during

riding provide for more sensory integration (Bass et al., 2009). Sensory integration allows the child to process multiple experiences during the riding session, thus creating more behavioral stability and attention in school and at home. Since attention is necessary in cognitive and emotional and psychological functioning, children need sustained attention to develop optimally (Graziano et al., 2011; Spalding et al., 2008). There are many negative outcomes that a child faces if sustained attention is not met, including declines in cognitive, social development, and health well-being. In order to help children grow and learn in the best way possible, attention needs to be developed (Graziano et al., 2011). Limitations noted such as small sample size, additional services received by a child, and medications may play a role in measuring the true effect of therapeutic horseback riding. However, this study attempted to demonstrate that therapeutic riding has the potential to improve adaptive behaviors, such as attention, in young children with disabilities in classroom environments (Cuypers et al., 2011).

CHAPTER III

METHODOLOGY

Introduction

There are many behaviors that children with developmental disabilities often present that are not productive or socially acceptable to others around them. These behaviors include but are not limited to self-injury, disruption, irritability, hyperactivity, and inattentiveness (Gabriels et al., 2012; Green et al., 2005; Schmidt et al., 2013). Therapeutic horseback riding may have a positive impact on some of these behaviors found in the classroom setting by promoting sensory integration, thus increasing attention, self-efficacy, and communication skills for the riders (Bass et al. 2009; Cuypers et al., 2011; David, 2007). While an understanding exists that therapeutic horseback riding can have a powerful impact on children with developmental delays or disability, there is little empirical research to back up this claim (Holmes et al., 2012). To understand positive outcomes of therapeutic horseback riding, such as increases in attention behavior, empirical research should be conducted (Gabriels et al., 2012). This chapter will describe the methodology that will be used in this research study. The focus of chapter three will be on the main objectives, including research design, research participants, an observational measure, proposed analysis, and limitations and delimitations. The procedures followed for data collection and analysis are laid out so

future researchers may replicate this study. The Institutional Review Board at Mississippi State University has approved for this study to be conducted.

Description of the Research Design and Methodology

This study is an exploratory study aimed at determining if there is an impact on sustained classroom attention for children who receive therapeutic horseback riding services. The research design is a structured observation study using a classroom observation tool. The purpose of this study was to identify if there is any difference in attention behavior of young children with developmental disabilities on days they participate in therapeutic horseback riding as compared to days they do not participate in therapeutic horseback riding. This method was selected because there is limited evidence currently available on this topic and it opens the door for more extensive research with this population in the future (Holmes et al., 2012). Additionally, this study uses an observational method to allow one researcher to code all data according to the attention exhibited by the children during the semester. The researcher actively observing children in their natural school environment allows for data to be collected in an environment where children are comfortable.

Research Hypothesis

Participation in therapeutic horseback riding is related to attention behaviors of young children with disabilities in a preschool classroom. For this study, we anticipate children are able to have a more sustained attention when compared to days that children do not receive therapeutic riding services.

Research Context and Participants

The population for this study consists of five preschool-age children that meet the following criteria:

- a. Children are four years of age at time of enrollment.
- b. Children have a diagnosed developmental disability.
- c. Children have been medically approved to participate in a weekly 1-hour therapeutic horseback riding session.
- d. Children receive services with the T. K. Martin Center for Technology and Disability.

The rationale for selecting criterion one is that the children are being observed in a preschool setting that the age of four is the standard age for children to begin receiving therapeutic horseback riding services. Children are being observed in their natural early learning environment where learning is taking place. Some children at the age of four have developed the ability to have sustained attention.

The second criterion was selected to understand if children with developmental disabilities benefit from therapeutic horseback riding. Researchers examine children's ability to maintain sustained attention in the classroom setting on days they receive therapeutic riding services as well as days they do not receive therapeutic riding services. The last criterion was chosen because the children being observed had the opportunity to engage in a therapeutic riding session at least once weekly over the course of a minimum of eight weeks per semester. A previous study has shown that therapeutic horseback riding has physical benefits such as increasing balance and flexibility for riders (David, 2007). Using the structured observations, data were collected on attentional behaviors

demonstrated by each child on both the day that the child participates in therapeutic riding and on a day he or she does not participate.

Variables, Measures, and/or Instruments

For this study, the independent variables are the days the children received therapeutic horseback riding services and days the children did not receive therapeutic riding services. The dependent variable is sustained attention, which is the ability of a child to focus or stay on task in on a certain stimulus in the classroom during regular instruction (Graziano, Calkins, & Keane, 2011).

To observe the possible effects therapeutic riding has on sustained attention, a scaled classroom observation tool was created to examine attention during normal classroom activities. The tool was used to gain a further understanding of how well a child regulates himself or herself in the classroom setting and maintains attention to interventions. The observation scale was designed to collect data at 5-minute intervals for a total of 20 minutes per child. The classroom observation data were collected and analyzed using SPSS to make comparisons between sustained attention on days therapeutic riding occurred and days therapeutic riding did not occur. This study will demonstrate reliability as there is only one researcher collecting data for the entire study. All data for this study were collected by one trained graduate researcher. After completion of this project, the classroom observation tool will be evaluated for effectiveness and then re-designed to meet the needs of a similar study for further researchers.

Procedures Followed for Data Collection

Consent for this research project was granted from the Institutional Review Board at Mississippi State University prior to beginning data collection. The time period for data collection was September to November, when riding opportunities occurred. Data for this research study were collected in the T. K. Martin classroom at the Catherine Bryan School twice weekly for 10 weeks beginning 1 week prior to the children receiving therapeutic riding services. Time sampling observations by a single researcher occurred the day before the children participated in riding sessions each week as well as on the actual day therapeutic horseback riding sessions were offered. During every observation, each child was observed four times in 5-minute increments. A number (1 – 5) has been assigned to each participant to keep their identities protected for this researcher. Each child participating in the study was observed in their assigned order, then the process was repeated an additional three times until the researcher obtained a minimum of 20 minutes of observation on each child. The researcher observed attention during each of the 5-minute increments. The child was determined to be on task, partially on task, not on task, or requires teacher intervention during the 5-minute period as a means of assessing attention in the classroom setting. The child may be partially on task or off task as well as need teacher intervention when being observed. When the child was on task and focused, he or she was engaging in activities/tasks, whether teacher or child directed, taking place during the observation period. Partially on task means that children spent time engaging in the activity or task being focused on in the classroom at observation time but failed to sustain attention for the whole observation period. If a child is off task, he or she did not engage in the activity or task currently taking place in the classroom

setting. If a child required teacher intervention, the teacher was required to gain the child's attention by physically re-directing him or her to existing or new activities taking place in the classroom setting. By looking at this aspect, we can see if there was more teacher intervention needed to have children sustain attention on days they ride as compared to days they do not ride. After 10 weeks of data collection, the data were coded and analyzed to determine if there is a relationship between therapeutic horseback riding and sustained attention in the classroom setting.

In addition, five separate single-case design experiments were conducted in this project corresponding to the number of children in the T. K. Martin class who rode in the therapeutic horseback riding program and for whom appropriate consent was provided. The single-case experiment is an approach that aids in understanding and identifying the individual behaviors, not groups of individuals. Data were plotted on graphs for each child. Each time sample observation was plotted for each week, both riding day and non-riding day.

Procedures Followed for Data Analysis

In order to test the research question, data were coded by the researcher with assistance from the committee. Once data had been coded, data were entered into SPSS. In order to determine if there was an impact on children's attention in the classroom setting, mean scores were generated for each day the children were evaluated. A higher mean score yielded from the SPSS data shows that more attention was elicited from the child. In order to assess if the research questions was or wasn't supported, differences were considered in how children reacted on days that they received therapeutic horseback riding and days they did not receive services. By assessing children in their classroom

environment, attention displayed on days children received therapeutic riding services and days they did not receive therapeutic horseback riding services were observed. By collecting these data over the course of 10 weeks, there was an opportunity to see if an increase in attention formed over the course of the children's September to November riding opportunities. After determining the mean score of classroom observation of riding and non-riding days, data were plotted for each child individually using the chart builder feature in PowerPoint to determine if there is a difference in classroom attention on days children did receive services as compared to days children did not receive therapeutic horseback riding services. By plotting children individually, single-case experiments was able to be conducted for each child based on their own individual behaviors. An independent samples *t*-test will be conducted on the data to determine mean scores for the group in an effort to determine if therapeutic horseback riding increased the attention for the group as a whole. Through using an independent sample *t*-test and single-case experiments, the hypothesis, assessment of attention behaviors of young children with disabilities can be related back to therapeutic horseback riding.

Conclusion

This study was designed to determine if therapeutic horseback riding impacts sustained attention in the classroom setting for children with developmental disabilities. Through the use of a T. K. Martin classroom, data using an observational tool was able to be collected on a group of children with varying disabilities who receive therapeutic horseback riding services in order to determine if such an impact exists. Children were observed over a 10 week period for a total of 20 minutes per observational session. Data collected during these observations was evaluated using a single case study method to aid

in the overall understanding of individual attention behaviors. Each observation was plotted individually to observe individual attention behaviors among this population. By conducting an independent sample *t*-test, attention behaviors were assessed for the group as a whole. Findings regarding the potential support therapeutic horseback riding's impact on sustained classroom attention are documented in the following chapter.

CHAPTER IV

FINDINGS

Introduction

The purpose of this descriptive study was to compare the effect of therapeutic riding experiences on attention behaviors in children with disabilities in an early childhood classroom. This chapter is organized around four major sections. The first section will provide an overview of the study. The second section will provide statistical findings and a visual and descriptive analysis of the findings from the data. The third section will discuss the results as related to the research question. The fourth section will provide an evaluation of the findings as related to the theoretical framework and in comparison to other research in the field.

The unique outcomes from riding a horse have been acknowledged in the literature for children with and without disabilities. Additionally, the relationship that can form between the human rider and the horse has been determined to meet both physical and emotional needs (Green et al., 2004; Schmidt et al., 2013). The problem remains there is limited empirically driven literature that offers support for the impact of therapeutic riding on children's social and emotional development.

To capture the impact of the therapeutic riding experience on young children, this study was designed to compare attention behaviors of young children in a preschool classroom on days they participated in therapeutic riding sessions and days they did not

participate in therapeutic riding sessions. The classroom behavior scale (Appendix A) was designed to use as an observation tool in a preschool classroom. The behavior of attention was selected because the literature notes up to 40% of children have shown attention problems by the age of 4 (Mahone & Schneider, 2012) and attention can be even more difficult for children with disabilities. The classroom observation scale allowed the researcher to capture attention behaviors during normal classroom experiences. The scale was coded to note if the child remained on task (2), partially on task (1), was off task or required a teacher intervention (0) in general over a five minute span for a total of 20 minutes per observation session ($N=180$ minutes). The higher the score the more sustained attention the child demonstrated.

Results

This study focused on the relationship between classroom attention behaviors of preschool children with disabilities during participation in a therapeutic riding program. An independent-samples *t*-test was conducted to compare classroom attention on riding days and non-riding days. The *t*-test was used to test for statistical significance. In addition to the *t*-test, a single-case experimental design was used to identify individual change for each participant. Individual graphs depicting the data collected on riding days and non-riding days are also provided. The research question proposed for this study is: Participation in therapeutic horseback riding is related to attention behaviors of young children with disabilities in a preschool classroom. For this study, we anticipated children would demonstrate more sustained attention on days they received therapeutic riding sessions when compared to days they did not receive therapeutic riding services.

Observations were made during normal classroom routines on days that the children participated in therapeutic riding sessions and on days they did not participate in therapeutic riding sessions. The classroom observation scale was scored in 5-minute intervals for 20 minutes per observation session per child. The data were collected over a 10-week continuous period. Appropriate tables and figure are provided to demonstrate the findings.

An independent samples *t*-test was conducted to compare classroom attention on riding and non-riding days for the group as a whole. There was no significant difference in scores between riding day ($M = 1.78, SD = .247$) and non-riding days ($M = 1.76, SD = .262$); $t(87) = -.481, p = .632$. The results suggest that therapeutic riding does not have a significant effect on young children's attention within the classroom as a whole, but may have some impact on individual children's sustained attention in the classroom setting.

In an effort to understand the significance of change resulting from the intervention of therapeutic horseback riding, graphs of the change in attention for each participant are depicted below. Independent samples *t*-tests were conducted for each participant, and results are provided under each individual graph. The graphs are labeled Figures 1 through 5 for each participant.

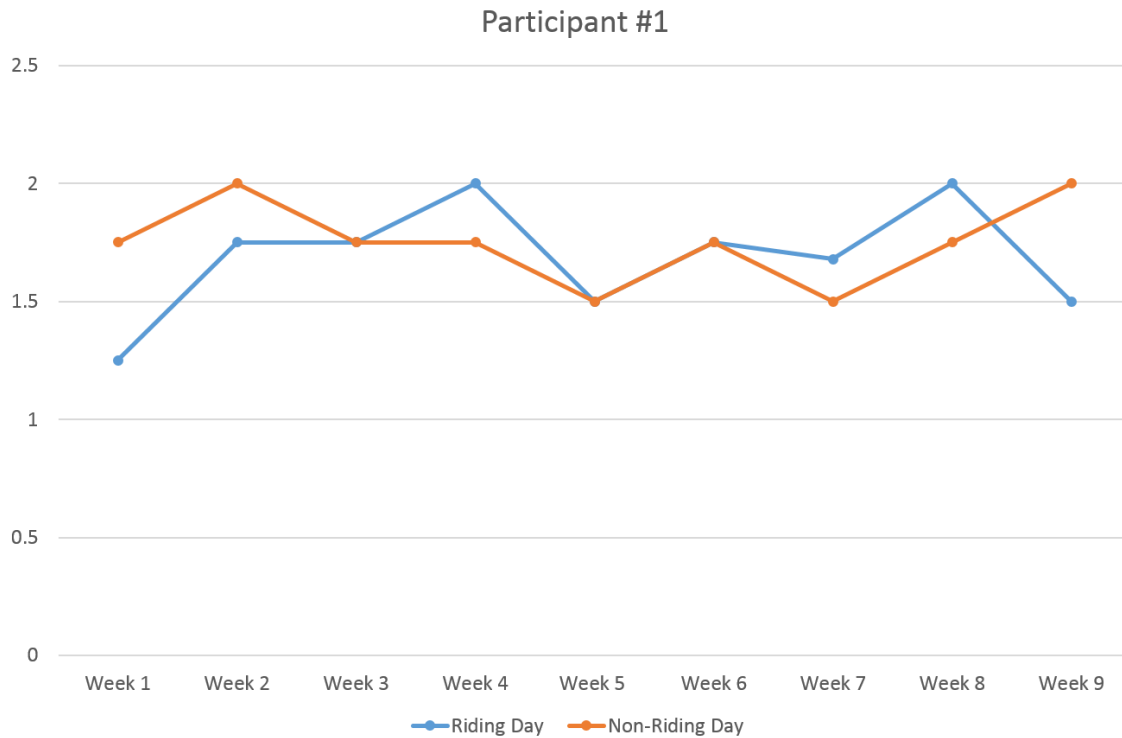


Figure 1 Attention Behavior for Participant 1

Each week of riding is indicated on the X axis, and weekly mean scores are on the Y axis. There was no significant difference in the scores for attention on riding days ($M = 1.68$, $SD = .258$) and non-riding days ($M = 1.75$, $SD = .176$); $t(15) = .588$, $p = .184$. This participant did not demonstrate a significant increase of sustained attention, as the mean on the riding day decreased thus indicating less attentive behaviors following participation.

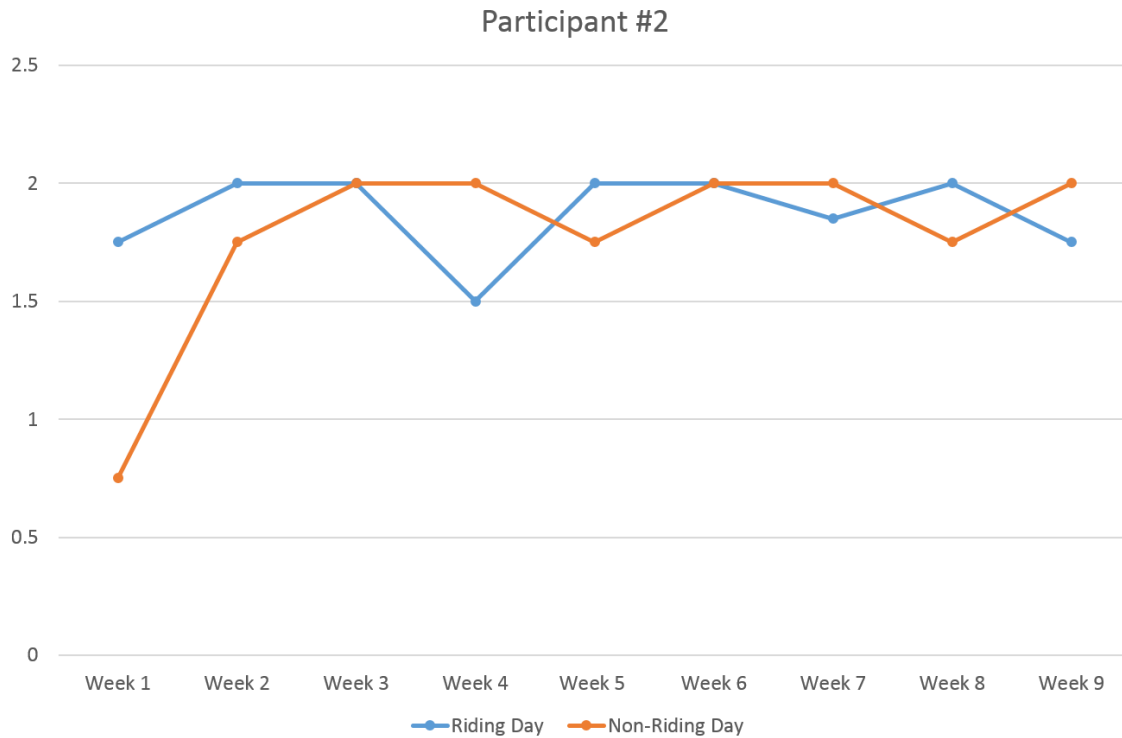


Figure 2 Attention Behavior for Participant 2

Each week of riding is indicated on the X axis, and weekly mean scores are on the Y axis. There was no significant difference in the scores for attention on riding days ($M = 1.87, SD = .188$) and non-riding days ($M = 1.72, SD = .415$); $t(16) = -.941, p = .217$. This participant demonstrated no benefit of increased attention, as there was not statistical difference in the means.

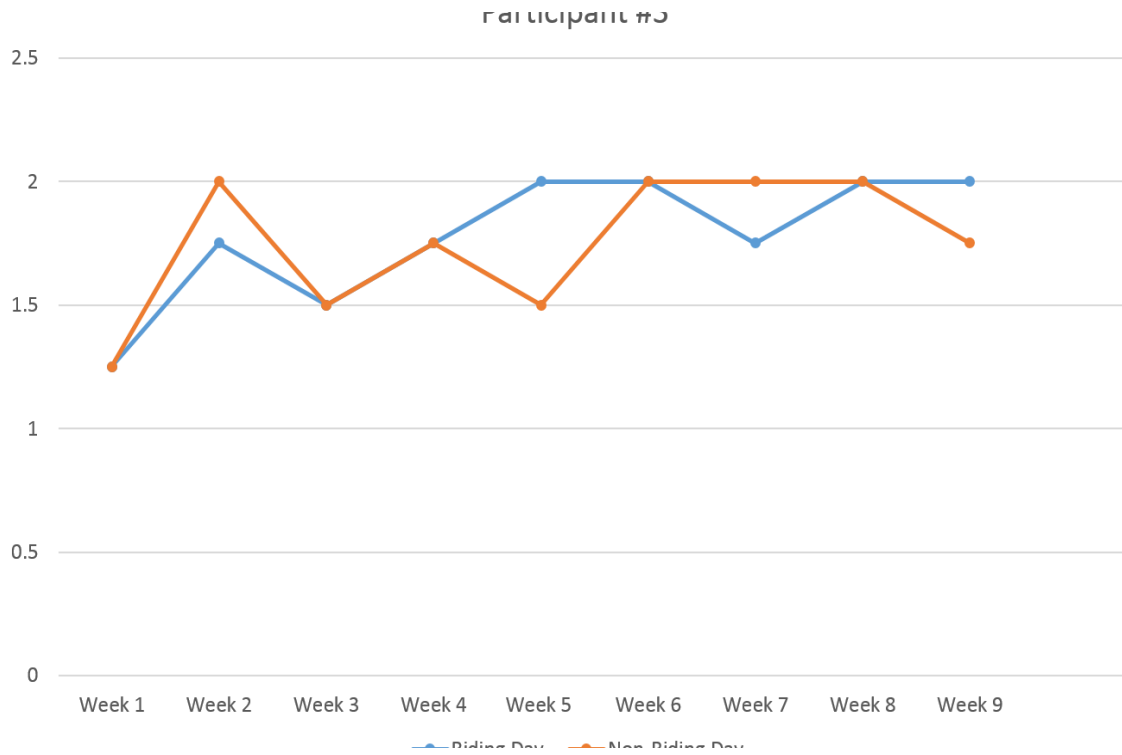


Figure 3 Attention Behavior for Participant 3

Each week of riding is indicated on the X axis, and weekly mean scores are on the Y axis. There was no significant difference in the scores for attention on riding days ($M = 1.77, SD = .263$) and non-riding days ($M = 1.75, SD = .263$); $t(17) = -.229, p = .973$. This participant demonstrated no benefit of increased attention, as the mean on the riding day decreased, thus indicating less attentive behaviors.

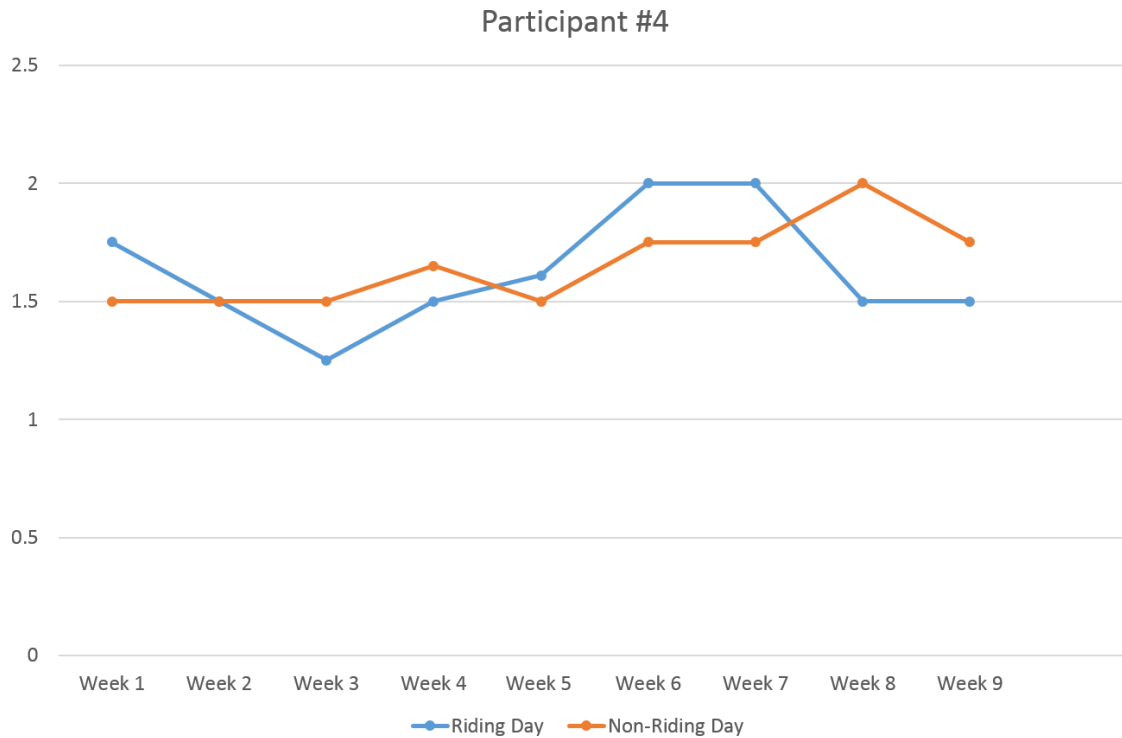


Figure 4 Attention Behaviors for Participant 4

Each week of riding is indicated on the X axis, and weekly mean scores are on the Y axis. There was no significant difference in the scores for attention on riding days ($M = 1.62$, $SD = .267$) and non-riding days ($M = 1.66$, $SD = .176$); $t(15) = -.383$, $p = .192$. This participant demonstrated no benefit of increased attention, as the mean on the riding day decreased thus indicating less attentive behaviors.

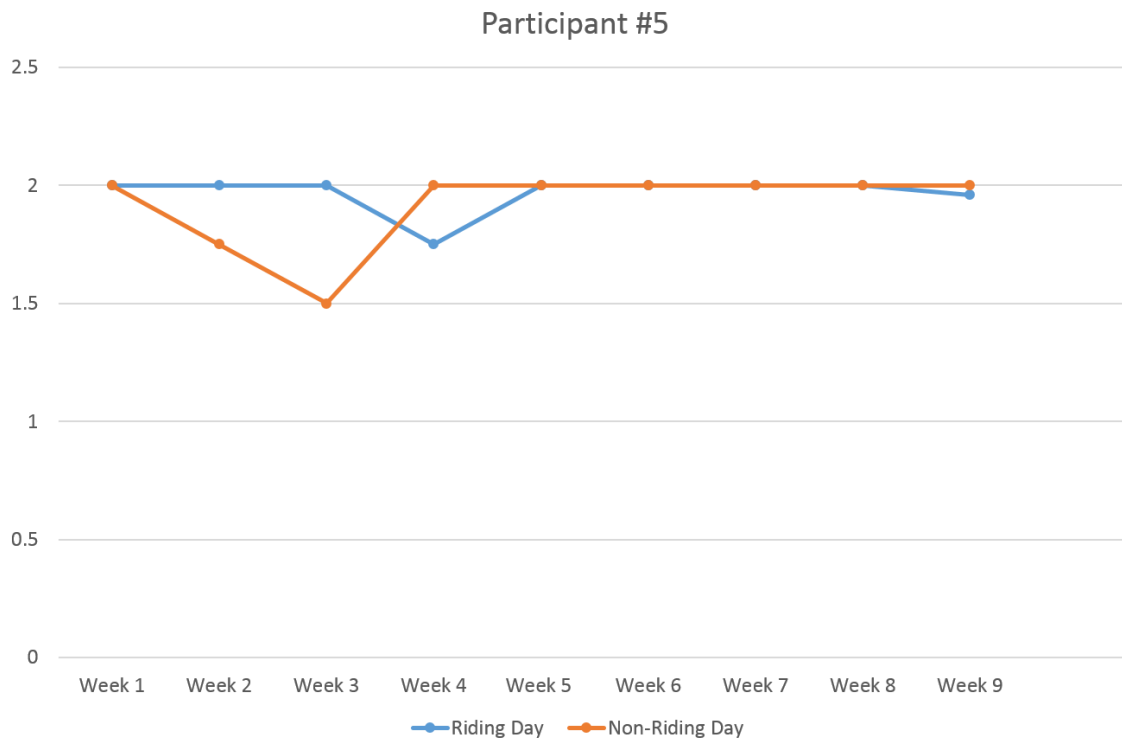


Figure 5 Attention Behaviors for Participant 5

Each week of riding is indicated on the X axis, and weekly mean scores are on the Y axis. There was a significant difference in the scores for attention on riding days ($M = 1.96$, $SD = .088$) and non-riding days ($M = 1.90$, $SD = .174$); $t(16) = -1.014$, $p = .045$. This participant demonstrated a benefit of increased attention, as the mean on the riding day increased thus indicating more attentive behaviors.

Evaluation of Findings

The findings in this study are evaluated in regard to (a) Sensory Integration Theory, (b) other research studies in the field, and (c) how the data from this study may provide practical implications for therapeutic riding research and programming.

Although no significant improvements in attention behaviors were exhibited in this exploratory study, Sensory Integration Theory still can be used to document how therapeutic horseback riding may have an impact on attention behaviors for children with a developmental disability. In this study, Sensory Integration Theory frames how young children with developmental disabilities process sensations during and after therapeutic horseback riding and use these experiences to organize behaviors. Proprioceptive senses, or those senses that inform the body what other parts of the body are doing (DiMatties & Sammons, 2003), promote collective use of all of the body's senses together.

Therapeutic riding provides a unique opportunity to capitalize on benefits of Sensory Integration Theory because it engages children in activities that will stimulate all of their senses. As children ride a horse they are engaged by the visual, auditory, olfactory, and tactile experiences of riding. Collectively, these experiences offer young children a robust sensory learning opportunity. When more sensory information is recognized, processed, understood, and stored (Ayers, 1979), the child benefits from an overall integrated experience. These experiences help children complete tasks and learn from the experience (Bundy, Lane, Fisher, & Murray, 2002). When children use all of these senses, they have the capacity to exhibit behaviors that impact learning, such as sustained attention (May-Benson & Koomar, 2010).

At this time, limited empirical evidence exists looking at classroom attention behaviors in children who receive therapeutic riding services. The results of this study differ from findings of Bass, Duchowny, and Llabre (2008), who evaluated the effects of therapeutic horseback riding on social functioning for children ages 5 – 10 years with autism. The participants in the social functioning study participated in a 12-week

therapeutic horseback riding program and were evaluated using pre- and post-tests administered to parents. Additionally, the Social Responsiveness Scale and Sensory Profile were used during this study. Unlike the current study, Bass, Duchowny, and Llabre (2008) concluded that therapeutic horseback riding participants had higher sustained attention and focus not generally associated with the autism population (Bass et al., 2008). Their study used the Sensory Profile, Social Responsive Scale, and parent reported pre and post-assessments to determine the increase in attention found among their participants (Bass et al., 2008). The findings of the current study do not align with the previous study.

Although the social functioning study found a significance when measuring attention in participants who received therapeutic riding services, notations should be made that observations and pre-/post tests were not conducted based on the classroom attention behaviors of children but on the responses during therapeutic horseback riding sessions. This study also focused solely on children with autism; however, for the current study, the participants had a variety of diagnoses. The studies were similar in that participants in both studies had never engaged in therapeutic horseback riding before research began and both groups had the opportunity to improve sensory integration skills.

Classroom attention in children with disabilities can be difficult to measure in general because young children, with and without disabilities, are noted to have impulsive and hyperactive behaviors, thus impacting attention. These behaviors are indicative of the developmental stage during the preschool years. Some research has followed the attention behaviors of young children in preschool classrooms and indicated attentional problems are matched at a higher percentage with the later diagnosis of

ADHD as the child enters primary school (Nolan, Gadow, & Sprafkin, 2001). The transition to primary school classrooms brings increased demands for young children to demonstrate sustained attention to be successful. More research that looks at the impact of therapeutic riding on sustained attention will be useful to document therapeutic riding as an intervention strategy, specifically for young children with disabilities.

Summary

In summary, data for this study do not support the hypothesis that therapeutic horseback riding has an impact on sustained classroom attention for children with developmental disabilities. Although no statistical significance was observed, some participants exhibited a slight increase in sustained attention behaviors in the classroom setting as indicated by the differences in the visual graphs. The hypothesis for this thesis was not supported by research; however, literature does support that horseback riding fosters a relationship that meets both physical and emotional needs of those who ride (Green et al., 2004; Schmidt et al., 2013). A further consideration from the exploratory standpoint of this study is to consider the possibility of carryover from sessions as all participants showed an increase in attention by week eight observed on the individual plots for each child. The next chapter will discuss implications from this research and provide recommendations for future investigations.

CHAPTER V
IMPLEMENTATIONS, RECCOMENDATIONS, AND CONCLUSIONS

Discussion

This study was designed to compare the effect therapeutic riding experiences have on attention behaviors in children with disabilities in an early childhood classroom. There was one research question: Do differences in sustained attention in the classroom setting exist for children with developmental disabilities between days they receive therapeutic horseback riding and days they do not receive therapeutic riding services? It was anticipated that observations conducted in the children's classroom would indicate an increase in sustained attention on days the children were engaged in therapeutic horseback riding sessions as compared to days they did not receive these services.

Quantitative results were determined using an independent samples *t*-test and depicted using graphs based on single-case experiments. Although some of the single-case participants' results concluded that there were minor increases in classroom attention while receiving therapeutic horseback riding services, the hypothesis that therapeutic horseback riding increased sustained attention in the classroom setting for children with developmental disabilities was not supported with statistically significant evidence.

This study provides initial insight into the impact therapeutic riding may have on classroom behaviors of young children. Although no significance was indicated by the

data collected, it provides the groundwork for redesign of the measure used for this study to collect additional parameters of attention data during normal daily routines. Sustained attention in early childhood plays a role in the development of cognitive, emotional, and psychological functioning (Graziano et al., 2011). When engagement and attention occur, learning is more likely to take place, thus increasing readiness for later academic success. Evidence to document the impact therapeutic riding may have on this kind of academic readiness will be helpful in supporting young children and therapeutic riding programs. To that end, a priority for using high-quality single-case studies to more easily understand individual variability during research projects is suggested in the research (Kennedy, 2005).

Limitations

Although this study presented some important initial evidence in this field, limitations for this project are noted. These limitations include the need for documentation of medications and other services being received by children with developmental disabilities in conjunction with therapeutic riding. In this study additional participant information was needed to paint a more comprehensive picture of influences to outcomes; a clear plan for intervention fidelity and generalization of effects was needed. Additional general limitations for this field of research are noted as well.

Few Existing Studies

When assessing needs of research in the field of therapeutic horseback riding, it was noted that many studies do not focus on the attention benefits therapeutic horseback riding may provide for children with disabilities that receive services. This is particularly

true of the classroom setting. Many therapeutic riding programs and PATH International indicate increased attention as a benefit of therapeutic horseback riding, but this is not well documented in literature. This study looked at whether therapeutic horseback riding had an effect on attention of preschoolers in the classroom setting.

Other limitations commonly documented in literature are noted below. Many of these are problematic for researchers when studying children who have developmental disabilities because of the large number of services and small number of programs available to this population.

Study Size

Small sample sizes were common among both attention behavior and therapeutic riding studies (Barnes et al., 2008; Favali & Milton, 2010). One study attributed this to only one school being used for the study. There was limited access to the number of participants available when low numbers of schools are selected (Barnes et al., 2008). Samples taken are often opportunistic, so the findings may not be able to be generalized to other populations. In order to combat this issue, larger, more representative studies should be performed (Holmes et al., 2012).

Other services

In some studies, there was not documentation of whether or not riding participants were receiving additional services along with therapeutic riding services. Thus, there is no way to measure whether or not other therapies had an effect alongside the therapeutic riding on the increase of benefits therapeutic riding can provide (Bass et al., 2009).

Medications

Given that children with disabilities often have some type of medical diagnosis, there is a possibility that medications used to treat conditions of the disability may impact outcomes (Lynn et al., 2013). Additionally, if children were taking medications, there was no indication to the amount of medications administered to children (Bass et al., 2009). This would require researchers in this study to collect daily medication information, which is currently not being included.

Observation Periods

Although children were observed in their own classroom setting for this study, considerations should be made to the number of observers coding and time frames for observations when collecting data in the future. One study looking at on-task behaviors in pre-school children assessed in the classroom setting with two observers during 10 second intervals (Webster, Wadsworth, & Robinson, 2015). Researchers coded for 10 seconds and recorded findings for 5 seconds. Intervals were recorded for 1 minute at the same rate per child. After this time, the researcher moved on to another child. Once all children were observed, the researcher coded the first child again until reaching eight minutes per child daily (Webster, Wadsworth, & Robinson, 2015). By conducting shorter observations with more coders, researchers may be able to collect more reliable data than coding with one researcher for five minutes, as per the design of this study.

Implications for Future Research

This study is important in serving as a launching pad for future studies that will focus on classroom behaviors of young children who participate in therapeutic riding

sessions. Prior studies in this area have provided only limited evidence of the outcomes therapeutic ridings may have for children with disabilities. As noted previously, limited empirical evidence is available for this population and topic area.

One major concern in the area of therapeutic horseback riding is that the field itself, especially in regard to classroom attention, is understudied. In fact, at this time, no other research is available that looks specifically at therapeutic horseback ridings benefits on attention in an early childhood classroom setting. PATH International and other programs claim therapeutic horseback riding provides positive benefits to increase attention behaviors in children with disabilities. This exploratory study provides a foundation to redefine our measure and specifically look at attention in defined activities to determine the impact therapeutic horseback riding has on attention in children with developmental disabilities. By creating more validated measures in the future, researchers can further develop knowledge on therapeutic horseback riding's benefits. Exploring other developmental domains is also warranted, especially language, will help to investigate this other benefits of therapeutic horseback riding claim. With more evidence to substantiate effects of therapeutic riding, educators and clinical professionals may make more referrals to equine-facilitated programs, and more families may choose therapeutic riding as a treatment modality for their children. Longitudinal studies need to be conducted to see if there are any long term effects that therapeutic horseback riding can provide to children. Additionally, more evidenced-based research may increase external funding opportunities for community-based programs. Finally, using a mixed-method approach of collecting qualitative and quantitative data may provide a more

comprehensive look at the outcomes of participation in therapeutic riding for young children with disabilities.

Summary

Therapeutic horseback riding has been documented in the literature as a modality for increasing both physical and emotional wellness in participants. In order to capitalize on the true benefits of therapeutic horseback riding, particularly in regards to its ability to increase attention in children with developmental disabilities, further research needs to be conducted. Additionally, documenting therapies children are receiving while engaging in therapeutic horseback riding services may allow for researchers to understand how the therapies together can impact young children (Bass et al., 2009).

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APPENDIX A

CLASSROOM BEHAVIORIAL SCALE OBSERVATIONAL SCALE

Appendix A

Classroom Observation:

Date: _____ Child: # _____

Classroom: TK Martin Classroom at the C. Bryan School

Observer: _____

Attention:

On task (focused) partially on task (a combination of on/off) off task required teacher intervention

Attention seeking:

Clingy Multiple requests No adult sought

Tactile/Sensory Sensitivity

Very adverse adverse accepting experience _____ n/a

Affect Regulation

Negative More (-) than (+) Both (-) and (+) equally Neutral More (+) than (-) EXCITED

Motor Regulation

Can't sit still at all Fidgeting Still

Tantrum Yes N/A

Started during observation: YES (beginning middle end) PRIOR

Extreme (e.g., scream; kicking; long lasting) Moderate (e.g., crying; refusals but manageable) Mild (e.g., visible but short-lived)

Was this ongoing during this observation point Yes No

Was this regulated by the end of the observation point Yes No

Teacher Praise

Process Person General no

Figure 6 Classroom Behavioral Scale Observational Tool

Observational Tool used in Study