

Eastern Kentucky University

Encompass

Honors Theses

Student Scholarship

Spring 2018

The Emotional Bond Between a Horse and a Child with Autism During Therapeutic Horseback Riding

Sarah K. Cox

Eastern Kentucky University, sarah_cox@mymail.eku.edu

Follow this and additional works at: https://encompass.eku.edu/honors_theses

Recommended Citation

Cox, Sarah K., "The Emotional Bond Between a Horse and a Child with Autism During Therapeutic Horseback Riding" (2018). *Honors Theses*. 523.

https://encompass.eku.edu/honors_theses/523

This Open Access Thesis is brought to you for free and open access by the Student Scholarship at Encompass. It has been accepted for inclusion in Honors Theses by an authorized administrator of Encompass. For more information, please contact Linda.Sizemore@eku.edu.

EASTERN KENTUCKY UNIVERSITY

The Emotional Bond Between a Horse and a Child with Autism During Therapeutic Horseback Riding

Honors Thesis
Submitted
in Partial Fulfillment
of the
Requirements of HON 420
Spring 2018

By
Sarah Cox

Mentor
Dr. Leslie J. Hardman OTD, OTR/L
Department: Occupational Science and Occupational Therapy

Abstract

The Emotional Bond Between a Horse and a Child with Autism During Therapeutic Horseback Riding

Sarah Cox

Dr. Leslie J. Hardman OTD, OTR/L; Department of Occupational Science and Occupational Therapy

This qualitative case study aimed to determine if the formation of an emotional bond between a horse and a child with the diagnosis of Autism Spectrum Disorder (ASD) during a Therapeutic Horseback Riding (TR) lesson is a key component to maximizing therapeutic benefits. Before collecting any data, it was initially hypothesized that this emotional bond was something that had to be established over time in order to be significant and a therapist should aim to use the same horse each time in order to maximize other positive therapeutic outcomes. Resources included in this case study will describe all of the various benefits TR has on children with ASD, and other types of disabilities, as well as describing the challenges children with ASD face everyday. This study surveyed parents/guardians who have a child with the diagnosis of ASD and who have participated in TR at a facility in central Kentucky. The TR facility owner identified six families who met the criteria and who received this questionnaire. Two of six families elected to participate and completed the questionnaire by sending it back to the primary researcher. The qualitative data did not support the formation of an emotional bond between a child with ASD and a specific horse having a direct correlation to other therapeutic benefits due to limitations of this study.

Keywords and Phrases: Autism Spectrum Disorder (ASD), Therapeutic Horseback Riding (TR), Disability, Equine-Assisted Activity (EAA), emotional bond, child, honors thesis, Animal Assisted Activities (AAA)

Table of Contents

Acknowledgements.....	iv
Introduction.....	2
Therapeutic Horseback Riding.....	2
Effects of Therapeutic Horseback Riding on Autism Spectrum Disorder.....	3
Relevance.....	5
Thesis Statement.....	6
Research Questions.....	6
Literature Review.....	7
Methods.....	16
Results: Parent Questionnaire.....	17
Results: Staff Phone Interview.....	20
Discussion.....	22
Limitations.....	24
Conclusions of the Study.....	25
Future Research.....	26
Conclusion.....	27
References.....	28
Appendices.....	32
Appendix A: Parent Cover Letter.....	32
Appendix B: Parent Questionnaire.....	34
Appendix C: Staff Phone Interview Script.....	36

Acknowledgements

I would like to thank my mentor, Dr. Leslie J. Hardman for guiding me throughout this whole process. Thank you for all of your time and patience throughout these past two semesters and always believing in me. Without you, everything would not have moved so smoothly and I would not know how to condense my ideas and thoughts since I am so passionate about this topic. Secondly, I would like to thank the staff at Hooves if Hope Equestrian Center, especially Blair Newsome and Laura Friday, for cooperating with me throughout my data collection process and giving me insight on their professional experiences with therapeutic horseback riding. Next, I would like to thank the survey participants for their willingness to fill out the questionnaire and being involved in my study. Finally, to my friends and family for showing me unconditional love and moral support throughout this process and my whole undergraduate career.

Introduction

This case study report will begin by explaining Therapeutic Horseback Riding (TR) and its effects on children with Autism Spectrum Disorder (ASD). The definition of TR is given, along with who is able to practice it and other individuals who contribute to the practice. The diagnostic criteria highlighted in this study include motor impairments, sensory deficits, difficulties in communication skills (verbal and non-verbal) and emotional imparities. Literature relating to this case study was reviewed and supported the claim that the relevance of this study lies in its uniqueness to explore the importance of an emotional bond between a horse and child with ASD during a TR lesson. The given research questions serve as a guideline to the formation of the parent questionnaire and staff phone interview script. Methods of this study include a qualitative approach to surveying subjects who meet the research criteria and whose responses will be used in the final discussion and conclusion. Due to a small sample size, limitations are then discussed which offer suggestions for future research.

Therapeutic Horseback Riding

A disability does not limit an individual from being able to ride a horse and participate in horsemanship activities. “Therapeutic Horseback Riding (TR) is an equine-assisted activity for the purpose of contributing positively to the cognitive, physical, emotional and social well-being of individuals with special needs.” (Smith, 2018). Horses have been proved to have remarkable healing qualities which is one example of why TR is seen as extremely beneficial to individuals

with special needs. Research conducted by Hayes (2015) explains that horses have the ability to demonstrate qualities like acceptance and compassion and also enables them to help all people heal from physical, psychological and emotional wounds of any kind.

TR can be practiced by a licensed therapeutic riding instructor, an occupational therapist, a physical therapist or a speech therapist. These professionals are trained in horsemanship and they not only understand problems presented by various disabilities, but they are also very comfortable with them. In order to be certified, these specially trained individuals have to be able to develop teaching techniques which accommodate any type of special need- such as training horses specifically for disabled riders throughout time and knowing how to use special equipment to compensate for countless disabilities. Along with the professionals that lead each session, they are usually accompanied by two or more volunteers acting as side walkers. Side walkers are responsible for walking along side of the the individual riding the horse and help relay instructions to the rider from the instructor/therapist. They also are responsible for demonstrating the activity the rider is supposed to complete and keep their eyes on them to make sure they are doing well and understand what is going on.

Effects of Therapeutic Riding on Autism Spectrum Disorder

Horses display an extraordinary ability to create profound therapeutic connections to children with Autism Spectrum Disorder (ASD) (Hayes 2015). ASD is a neurological condition, present from early childhood, characterized by difficulty in communicating and forming relationships with other people and in using language and abstract concepts. ASD can persist for life, with major implications for the individual and there are currently limited medical treatments for these individuals (Aronoff, Hillyer and Leon 2016); however, TR has proved to be highly successful for children with ASD by providing motor, sensory, communication and emotional

sensations that come from riding a horse. According to Ward, Whalon, Rusnak, Wendell and Paschall (2013), TR is specifically effective for children with ASD who experience difficulties with joint attention, appropriate social responses, communication, and management of sensory input and responses.

When it comes to motor abilities, children on the autism spectrum often have delays in postural control, coordination and motor planning. Research by Cuypers, De Ridder and Strandheim (2011) describes TR as a physiotherapeutic treatment that uses the horse as an instrument, and the ultimate treatment strategy is using the multidimensional movement of the horse. TR essentially helps improve motor abilities because it encourages children to hold themselves upright in the saddle and improves their balance when changing directions or increasing speed.

Children with ASD also experience sensory deficits. The American Psychiatric Association (2013) explains that these children have hyper/hypo- reactivity to sensory input or unusual interest in sensory aspects of the environment, including preoccupation with texture or touch and unusual sensory exploration with objects. In order to improve sensory abilities, it has to be understood that balance and spatial orientation are experienced through the vestibular sense organs. These are located inside the inner ear and are stimulated through direction change, incline, and speed. Riding a horse helps liven these sensory receptors, which helps make therapy exciting and motivates the child to continue to be engaged (“What is ASD?” 2018).

Next, children with ASD often experience difficulties in their communication skills, such as comprehending verbal directions given by someone else. The American Psychiatric Association (2013) provides information affirming that children with ASD experience persistent deficits in social communication and social interaction across multiple contexts. By engaging in

TR, the child engages in a variety of tasks and activities that make direction taking easier to grasp and remember. They will also be able to give the horse direction, which provides them with more opportunities to communicate and improve their cognitive and language skills. Rather than verbal communication, autistic children also experience physical communication with the horses. They brush them, hug them, and pat them. By learning to be the care taker of the horse, children with ASD associate the specific care they provide with feelings and an emotional bridge is then possibly constructed (“What is ASD?” 2018).

The final major area that children with ASD improve on in TR, which is the driving force of this study, is the ability to form emotional bonds. Caring for a horse helps children with ASD learn about the feelings of another living being and hopefully, that bond will help the child develop social and communication skills in all areas of his/her life (Smith 2017). Some children with ASD as mentioned before have difficulty bonding emotionally to others and many have difficulties interpreting other’s emotions as well as expressing their own emotions. The diagnostic criteria for ASD explains the emotional imparities of children with ASD by explaining that they have a reduced sharing of interests, emotions, or affect; as well as deficits in developing, maintain, and understanding relationships (American Psychiatric Association 2013).

Relevance

After reviewing more than 30 articles from psychiatric rehabilitation, alternative and complementary medicine, autism and developmental disorder literature, the author of this case study did not find research in literature specific to the significance of the emotional bond between a horse and a child with ASD. The author of this case study has yet to find a study/research paper focusing purely on the significance of the emotional bond between a horse and a rider with ASD and how this might affect other areas of improvement. The themes of

literature reviewed for this study found some benefits of TR not specific to ASD, therapeutic activities not specific to TR that improve symptoms of ASD, as well as some that connected improvements of ASD symptoms directly related to TR. Research by Holm, Baird, Kim, Rajora, D'Silva and Minshew (2014) explained that the focus of TR included physical, social, learning, sensory and psychological goals, including the relationship between the horse and the rider, but failed to provide proof of their claim. Consequently, this case study aims to discover information about therapeutic riding specifically on children with ASD by actually speaking to therapeutic riding instructors and parents/guardians who have a child with the diagnosis of ASD, to further explore if the relationship between the horse and the child with ASD is significant.

Thesis Statement

The emotional bond between a horse and a child with ASD during a TR session is something that has to be established over time in order to be significant and a therapist should aim to use the same horse each time in order to maximize the positive therapeutic outcomes. According to the author's personal experiences of volunteering at TR facilities, it appeared evident that some children with ASD who are used to riding the same horse each week, behave differently or do not benefit in the same manner when a different horse is used.

Research Questions

What if there is a different horse used in the TR session?

If a child emotionally bonds to a specific horse, is there a direct correlation to benefits from TR?

If the answer to number 2 is that changing horses is a negative factor, will this encourage other TR facilities to use the same horse for each session?

Literature Review

Benefits of Therapeutic Riding Not Specific to Autism Spectrum Disorder

Bizub, Joy and Davidson's (2003) report the benefits of Therapeutic Horseback Riding (TR) for individuals with psychiatric disabilities. The authors provide a case study involving three adult men and two adult women between ages 26 and 46 from the psychosocial clubhouse, all of which the primary diagnoses were within the schizophrenia spectrum. The participants were very fond of animals but never had much experience with horses, providing subjective results for this particular rehabilitation service. The authors of the article highlight the importance for individuals with psychiatric disabilities to experience non-mental health related activities such as TR in order to further develop personal skills, learn to cope with illness, and develop greater self-esteem. The article rests on the desire to facilitate psychosocial growth and development for individuals with psychiatric disabilities through TR by partaking in bonding activities with horse, practicing mounting and dismounting and then providing post-riding processing feedback while constantly being engaged with the other participants in the lesson. The primary outcomes of the study found that the use of post-riding processing groups encouraged riders to have the opportunity to evaluate themselves and the other riders, essentially spending quality time conversing with and establishing relationships with not only the horses and volunteers, but each other as well, proving to be highly beneficial in the refinement of their everyday lives. After gaining feedback from the participants of this study, further benefits included the opportunity of exploring a new environment and stepping out of one's comfort zone. Participants were able to overcome their sense of doubts and fear, rising their perspectives to a new height and building a strong awareness of inner confidence and self esteem.

Bizub et al. (2003) use a qualitative analysis to describe how the program used in the case study was a transformative program for participants in comparison with the disempowering occurrence of psychiatry systems. TR allows participants to describe their personal experiences and tie them back to their meaning, essentially making them feel like they are being listened to rather than being compared to other case histories; however, the article fails to provide information regarding traditional psychiatric services nor does the case study involve a control group. From the perspective of this current study on the benefits of TR, specifically focusing on the significance of the bond formed between the rider and the horse, the article showed the importance of constantly staying engaged with the rider even after a TR lesson has been completed. The study drew out the underlying benefits of TR lessons and how they ultimately maximize long-term recovery and self-sufficiency. The source also establishes a need to have a control group in which you can somehow compare traditional and TR rehabilitation services.

Boyd and Le Roux's (2017) explore the parents' experiences of therapeutic horseback riding (TR) in a scholarly journal article as a successful activity for their children with disabilities. The article consists of a case study in which twelve parents whose children attend TR lessons were asked to participate in semi-structured interviews that would provide qualitative data to be transcribed and analyzed. At the end of the study, parents' perceptions of TR activities would be established. Throughout the case study, the effects on the children were directly observed, parents were able to personally experience the services, and parents were able to be actively involved in discussing their perceived reasoning behind their children's improvements. Parents at the end of the study indicated that their children with disabilities had a positive psychological, social and physical affect after attending TR which ultimately played a significant role in the quality of life of the children, along with the parents.

Boyd & Le Roux (2017) support their primary argument by utilizing an exploratory qualitative research design to ensure that the parents' answers and thoughts were not restricted to a predefined set of experiences and views. Data was collected from a series of parent interviews that lasted 15-70 minutes and they were audio-recorded by the parents who gave permission. Thematic analyses were then used to transcribe the recordings and search for reoccurring themes in the data set. One strength of the study was it used peer examination by the supervisors as well as by the professionals with a background in psychology. This allowed a fresh set of perspective to be acquired and feedback regarding vague sessions and potential biases. To compare the study with others of its kind, the study utilized previous research findings and reviewed the congruency between the results. The limitations of the study were ultimately centered around the fact that the sample size was simply not large enough to reflect the whole population. Only parents whose children attended lessons in the afternoon and who could receive email requests; the excluded sample size were the economically disadvantaged participants that would've been useful for the outcomes of the study. The authors suggest that a longitudinal study would show more beneficial and more specific findings than a shorter stint and advised that the questions were too restrictive and they needed to be more open-ended to allow a free flow of conversations, thoughts and experiences.

Research by Cuypers, Ridder & Strandheim (2011) aimed to investigate the positive effects of therapeutic horseback riding (TR) on behavior, health-related quality of life, and motor performance in children with attention deficit hyperactivity disorder (ADHD). It is a pilot study that employed a time series quasi-experimental design with two pretests and two post-tests in which five children aged 10-11 with ADHD received a one hour TR lesson twice a week for eight weeks. The primary outcomes indicated that TR had a positive effect on the children in

several domains of the social role of behavior, quality of life and motor performance. There were no significant changes during the non-treatment phase but the positive results were notably seen during post treatment phase. The children themselves reported a significant difference in quality of life, which proves how beneficial TR truly is, and the parents were also asked to complete a questionnaire, confirming the results. The source uses pre- and post-test scores from other sample tests for nonparametric multiple test results and to compare the overall findings to an existing study. The strengths of this study are found in the researcher's knowledge and experience to choose the best combination of equipment, horse and movement patterns for each participant to maximize the possible benefits that would take place after each TR lesson.

The first three articles presented above all relate to each other because they describe various benefits TR offers, not specific to children with ASD. First, Bizub et. Al (2003) provides essential a qualitative analysis of how TR served as a transformative program for adults with psychiatric disabilities. Next, Boyd et al. (2017) uses the approach of collecting information of the benefits of TR through a parent's perspective which was one driving force for this current study. Then, Cuypers et al. (2011) investigated the positive effects of TR on the quality of life of children with ADHD. Although this was not specific to ASD, the article offered information that was beneficial for understanding how influential horses are in therapy. These three articles provided framework for studying TR and the innumerable healing qualities of horses, but were not specific to children with ASD.

Benefits of Therapeutic Riding Specific to Autism Spectrum Disorder

Research by Borgi, Loliva, Cerino, Chiarotti, Venerosi, Bramini and Cirulli (2016), demonstrates the improvements in social functioning and motor abilities in a group of children attending Equine Assisted Therapy (EAT) programs supports the use of Animal Assisted

Interventions (AAI), specifically with children with ASD. Using animals in therapy signifies an operative tool to dampen withdrawal in individuals who are socially isolated, which is why AAI programs are encouraged among children with ASD. Rather than focusing on the riding portion of EAT, the study emphasizes the importance of other activities that support positive engagement of participants and the potential counteracting of social withdrawal such as, grooming and mounted riding activities. A total of 28 male children ages 6-12 were chosen to participate once a week for 6 months, totaling at 25 60-70 minute sessions for each patient. The study ultimately aims to investigate whether an EAT program, included in the routine of activities of children with ASD, is able to affect adaptive and executive functioning in a positive manner. It evaluated the effects of EAT by using problem solving tasks developed to detect difficulties in planning and problem-solving. Results of the study indicate that after attending an EAT program for 6 months, the children in the sample showed great improvement in social functioning and enriched their executive abilities, but reduced the underdevelopment of making the first move during a problem-solving task. The case study uses the results of similar case studies to compare and introduce arguments based on the findings of common research. In other detected studies, increased social interaction has been related to increases in language and communication following TR sessions; however, in the case study, no time-dependent increase in communication nor language was observed. Borgi et. al (2016) highlight children with ASD as a significant target population that benefits from EAT programs due to the ability of children to naturally practice social skills by bonding and being in command of the horse used during therapy. The study specifically focuses on problem-solving and executive tasks, while this study aims to solely focus on emotional bonds, which will allow the author to utilize experimental

methods and the descriptions given about children with ASD and the different ways in which EAT programs can enhance their everyday lives.

Bass, Duchowny and Llabre's (2009) present a scholarly article that expresses the various benefits of TR specifically with children who suffer from ASD. The main concept being explored is the proposition that TR may be effective in improving social cognition in children with ASD, while the study also attempts to build on existing animal research by examining the multiple effects TR has on these children's' social functioning, ultimately developing a bond between the child and the horse. The authors of the case study hypothesized that after the TR interventions, children exposed to this unambiguous type of therapy would exhibit improvements in social functioning compared to participants who did not receive the same treatment. Thirty-four children diagnosed with ASD participated in the study and each child received a TR session for one hour per week over the span of 12 weeks. Results of the study agreeably indicated that TR is an efficacious therapeutic option for children with ASD and when compared to the control group, autistic children improved greatly in critical areas such as integration, social motivation, sensory sensitivity and directed attention.

Bass et al. (2009) used various exercises during each TR session to support its primary claim. Exercises targeted areas in need of improvement such as balance and coordination, verbalization, gross motor development, communication and fine motor skills. Instructors also made strong efforts to maintain eye contact with all participants equally throughout each TR session. Since participants were instructed to listen to directions and then verbalize them back to the horse, they were required to engage actively and constantly maintain direct involvement. With few exceptions, the literature in this source is limited to previous case reports and descriptive studies examining the effects of TR programs targeted on bonding activities

mounting skills and post-processing group activities. The close interactions that took place during each session helped to support the claim that TR improved social functioning. Although the study included a control group, lack of personal data made it extremely difficult to decipher if the results took place due to TR or the medications the children were on.

A case study by Lanning, Baier, Ivey-Hatz, Krenek and Tubbs (2014) uses quality of life assessments to determine the behavioral changes of children diagnosed with ASD who participated in equine assisted activities (EAA). Behavioral changes of 25 children with ASD who participated in nine weeks of EAA were compared to the behavioral changes of children with ASD who participated in non-equine interventions. The findings of the study lend support for continuation of EAA in the treatment of children with ASD because when parents were asked questions about how often their child argues, their difficulty concentrating, and how often they lie or cheat, the parents reported all of them to decline and noted significant improvements in their child's physical, emotional and social functioning following EAA lessons. Although results showed improvements in all domains, positive treatment effects were most noted in the areas of social functioning, physical functioning, school functioning and overall mental health and behaviors. Recent research examining EAA effects on children with ASD were used as a guideline for the study but since most experiments are sparse and limited by lack of comparison groups, the study focused on expanding common knowledge and actively involving a control group to compare the outcomes.

These three sources related to one another and were very useful in regards to this current study because they all discussed various benefits of TR specific to children with ASD. The research presented by Borgi et al. (2016) demonstrated the improvements in social functioning and motor abilities of children specifically with ASD, but did not focus on the emotional bond.

Next, Bass et al. (2009) also did not focus on the emotional bond, rather it focused on the improvement of social cognition. Lastly, Lanning et al. (2014) used quality of life assessments to determine the overall behavioral changes of children with ASD. The information presented by all three articles served as a guide to understanding the overall benefits of TR; however, they did not present any information to support the initial hypothesis of this case study. Other articles were then reviewed in hopes to find other therapeutic approaches that might benefit ASD in a way that could be helpful to this case study.

Benefits of Animal Assisted Activities Specific to Autism Spectrum Disorder

Research by Silva, Correia, Lima, Magalhaes and de Sousa (2011) provides quantitative evidence that dogs positively modulate the behavior displayed by children with ASD. A 12-year-old boy diagnosed with ASD was used as the participant in the study and he served as the experimental group and the control group. He was exposed to one-on-one structured Animal Assisted Activities (AAA) with a therapy dog and a therapist and then was exposed to one-on-one structured activities with the same therapist, however this time he was not accompanied by the therapy dog (control). At the end of the study, the results showed that in the presence of the therapy dog, the child showcased more frequent and longer durations of positive behaviors such as, smiling and positive physical contact. Also, the child exhibited less frequent and shorter durations of negative behaviors such as aggressive manifestations. The main concept being explored is ultimately that dogs can prime autistic children for therapy which contributes toward the possible acceptance of canine-assisted therapy.

Funahashi, Gruebler, Aoki, Kadone and Suzuki (2014) quantitatively measure the smiles of a child with ASD using a wearable interface device approved by the Ethical Committee during animal-assisted activities (AAA) for a duration of seven months. The wearable device was

designed to collect EMG signals using computational methods which recognized the facial expression patterns of smiles. The case study involved a 10-year-old boy with ASD and a normal, healthy boy of the same age as the control. The main concept being explored in this source suggests that by leading a child with ASD into a social environment such as AAA that may cause smiling, the child's social positive behaviors will be strengthened and their social negative behaviors will be weakened. The ultimate findings of the case study showed that each the control child and the child with ASD increased their smiles as the sessions progressed at different rates. For the control child, there was a clear positive relationship between the increase of smiles and the increase of positive social behaviors which was relatively stable throughout the study. The child with ASD on the other hand, showed a steep drop in positive social behaviors as the smiles increased. However, the negative social behaviors observed were reversely related with the control child and the ASD child. Funahashi et al. (2014), considers and relates the positive social behaviors back to AAA with a horse since both have reported that smiling and positive physical contacting increased from these activities and that negative behaviors of children with ASD decreased. The source brought about the realization of various aspects and characteristics of children with ASD that make them slow to accept animals and takes them a while to open up compared to control groups.

These two sources highlighted some of the benefits of other Animal Assisted Activities specific to children with ASD. They serve as resources to this current study by providing knowledge of ASD and also showing an increase in positive behavior such as smiling and appropriate physical contact, which could be considered a sign of emotional bonding. Research by Silva et. Al (2011) showed that the presence of a therapy dog appeared beneficial in encouraging longer durations of positive behaviors in a child with ASD. Next, Funahashi et. Al

(2014) also correlated frequent smiling and positive social behaviors with AAA but also suggests that children with ASD can be slow to accept animals and show their benefits.

Summary

In the relevance section of this study, it was stated that the author has yet to find a study/research paper focusing on the significance of the emotional bond between a horse and a rider with ASD and how this might affect other areas of improvement. Each article reviewed was selected specifically for the purpose that they all had one or more characteristics that closely relate to this current study. Emotional benefits were highlighted in some articles of children with ASD; however, they were not specific to TR. Some of the articles even exemplify benefits of TR specifically on children with ASD, but neglect to focus on the significance of an emotional bond that may be formed.

The two articles presented in this section above closely relate to one another because they discuss benefits of animal assisted activities specific to children with ASD. Quantitative research by Silva et al. (2011) present information that says the presence of a therapy dog encourages more frequent and longer durations of positive behaviors such as smiling and physical contact. Next, Funahashi et al. (2014) similarly measures the smiled of children with ASD during animal-assisted activities (AAA) to bring about the realization of why children with ASD are slow to accept animals. Although these articles may be able to offer information about children with ASD forming emotional bonds, they were not specific to TR, or horses at all.

Methods

This study used a qualitative approach of collecting thoughts, opinions and experiences from professionals and parents/guardians of children with ASD to investigate the initial hypothesis. The subject population includes parents/guardians that have a child with the

diagnosis of ASD and who have participated in TR at Hooves of Hope Equestrian Center. The owner of Hooves of Hope, Blair Newsome, identified six families who met the criteria and who received the cover letter/questionnaire. Study participants were anonymized, including the staff referred to by job title and the parents assigned with a number. The recruitment procedures that were used with potential participants started with sending a cover letter and questionnaire to Blair Newsome explaining the nature of the research. She then sent the letter to six families she selected from her client list to identify participants with children who meet the inclusion criteria. If they elected to participate, they were given five to seven days in which they were expected to complete and return the questionnaire. If the participant did not have it completed during this time frame, they received a reminder email in which they were given two additional days to complete the questionnaire. If there was still no response, it was inferred that the parent recruited did not elect to participate and were not used in the final project documentation. If they completed the questionnaire, they were instructed in the cover letter to email or mail it to the primary researcher. The completed parent questionnaire was used to collect data followed by a phone interview with the staff at Hooves of Hope using the staff interview script.

Results: Parent Questionnaire

After sending out the cover letter and questionnaire (Appendix B) two of the six parents/guardians elected to participate. In comparing their responses, common themes were found between their responses to certain questions. By understanding the criteria for the diagnosis of ASD, it was hypothesized that these selected children would not do well forming emotional bonds with others prior to attending TR lessons at Hooves of Hope. The question (8) stated, "Prior to attending TR lessons, how well did your child form an emotional bond with others?" Parent 1 answered by saying, "She does not form emotional bonds easily." Parent 2

answered by saying, “I believe that my daughter has always been able to form emotional bonds – more so than many individuals with autism.”

Next, it was hypothesized that one way of being able to tell if a child has an emotional bond with their horse is how and if they anticipate their arrival to their TR lesson. This was thought to be a good indication of how much these children enjoyed TR by thinking about it ahead of time. It was then hypothesized from this that if an emotional bond was formed between the horse and the child, they would anticipate their arrival more so than children who did not. This question (4) stated, “Does your child anticipate his/her arrival to Hooves of Hope?” Parent 1 answered by saying, “My child does not display a lot of enthusiasm about most activities that are not her choice. She seems happy to go but I would not say she shows great anticipation about the lesson.”. Parent 2 answered by saying, “I know that my daughter looked forward to the sessions. That was one reason I did not give up. She obviously WANTED to go there – even when she was yelling to get off of the horse after a bit of time. She would say ‘horses’ on the drive there, and would eagerly gather the objects we needed at home (special shoes, stool) to take with us.”

Since this study explored the positive therapeutic outcomes pertaining to a child with ASD forming an emotional bond with a horse and one of the research questions was to find out if changing the horse during a lesson is a negative factor to the benefits from TR. One question in the parent questionnaire asked if the parents were ever aware of a change in horse. This question (7) stated, “Has there ever been a change in the horse that is used in the therapeutic riding session, that you know of, and has this affected your child in any way? Describe.” Parent responded by saying, “She seems to adjust fine when her horse is changed although it is nice for her to have a familiar horse.” Parent 2 then responded by saying, “Well, she knows their names,

and will repeat their names on the drive there. There have been changes, and she has appeared to adjust with no problem.”

After attending TR lessons, the goal was to find out from parents if they have seen a change in the way their children emotionally bond with others. This question was necessary in the inclusion of the results the responses could either confirm or deny that TR would have strengthened these children’s abilities to form emotional bonds- better than they were prior to TR. However, the responses to the given question was not expected based on these 2 parents. The question (9) stated, “After attending Hooves of Hope, have you seen a change in the way your child emotionally bonds with others?” Parent 1 answered by saying, “No, she continues to struggle to form emotional bonds.”. Parent 2 answered by saying, “As I said – she has always bonded well, and continues to do so.”

To conclude the parent questionnaire, the last question aimed to find out what benefits the parents notice in their child after attending TR. This question was asked in order to see if the parents were aware of their children’s therapeutic outcomes and what benefits were evident prior to their lesson. The question (10) stated, “Are there any other benefits you have witnessed in your child after participating in therapeutic riding?”. Parent 1 answered by saying, “Calming, meeting of her sensory needs.”. Parent 2 answered by saying, “I have noticed that she appears to take great pride in the accomplishment of being a part of Hooves of Hope. I say this because I generally take pictures with my iPhone during her rides, and then share them with other folks later. I notice she ‘takes an interest’ in what I am doing and saying and responds to the comments made by others in this regard.”.

Results: Staff Phone Interview

When speaking to the Equine and Barn Director, Laura Friday, for the interview she had a lot to say for each question but the entirety of her responses were not vital in the inclusion of this portion of the study. One of the questions (2) that contained the most relevant information was as follows: “Describe the interactions you witness between a rider on the Autism Spectrum and the horse during a therapeutic riding session.” In summary, Laura responded by discussing her personal experiences when working with children with ASD during a TR lesson. She first explained that for all of their riders, the interactions they see between the horse and the rider is how the riders verbally encourages the horses. They always say “good job” or “way to go” or something along those lines that encourages them to verbally interact with the horse.

Next, for one specific rider, Laura explained that every time they are in the grooming bay, the rider leans over to the horse’s ear and preps him for everything he’s doing. So when they tell him to “go grab the brush”, he leans over and whispers, “I’m going to grab a brush, I’ll be right back”. He also makes sure that he says “good boy” the whole time he’s mounted on the horse. But of course, he is very verbal compared to some of the other riders! However, when he first started attending lessons at Hooves of Hope, he was not verbal at all the first couple weeks. This ultimately has served as one of his greatest improvements

A different rider she talked about, is also very high functioning ASD. His intellectual abilities are very good compared to other riders. He is able to understand not only directions but a lot of concepts about ASD as well. Although this child is very high functioning on the autism spectrum, he has very serious anxiety and the horse reciprocates these emotions. Laura said that she knows when he is about have an anxiety attack because the horse starts to put his head up

and ears back. She then tells him, “You being anxious is making your horse anxious too!”. Since he understands this, he decides to calm down for the sole purpose of calming his horse down.

Lastly, another rider that came to Hooves of Hope the first week had very serious separation anxiety from her mom. Since they don't allow the parents go out into the grooming bay or the arena with them, they had to explain to her that her mom could see her through a two-way mirror and she would be there the whole time. When she was out in the arena having a temper tantrum, they decided to bring the horse to her and see how she responded. So then the horse put his head down at her level and took very deep and loud breaths and stared at her, which is usually what they do with the riders in order to calm them down. Then the child was beginning to become curious of this huge animal and everyone present in that moment saw that the horse's deep breaths actually calmed down the child and continued to calm her down each lesson- which is one of many examples of horse's healing qualities.

Then, for the purpose of this study, Laura was asked how Hooves of Hope determines which horse they use for each lesson. This question was important because knowing if they aim to use the same horse each week prior to this study would help draw conclusions in the end. She explained they usually consider the physical aspects of the horse and the child first. For example, narrow horses are used for a rider with muscle spasticity so their hips are not being spread too far which would cause them pain. They also select a smooth gaited horse for a hypotonic child who does not have good spine and neck control. Once this is figured out, they then examine the personality of both the horse and the rider as well. One of their riders that is very high functioning and active does not work well with slow, laid back horses because he does not feel a connection with the horse when it doesn't respond fast enough. She also explained that for the purpose of the riders getting used to saying the horses name, they try to use the same horse each

week to eliminate states of confusion. After figuring this out, the phone interview continued by asking the question (6), “If you have ever changed the horse that is used in a specific rider’s lesson, did they notice? If so, describe noticed changes, if any, in the rider’s behavior during the lesson”. Laura responded by saying, “Yes 2 of the riders noticed almost right away, but these were our high functioning ASD riders. They were very concerned about the well being of the other horse they usually ride and wanted to go pet and talk to the horse the whole time; however, since they were able to understand that the horse was sick or whatever the reason was, they still just wanted to ride whichever horse. Also though, sometimes changing the horse can be positives if the personality and connections were stronger. If we saw that changing the horse made them benefit more from the lesson, then we would stick to the new horse. On the other hand, though, our rider with dual diagnostic figured out that the horse wasn't the same and he was less focused for the whole first 2 weeks. Since that horse was the one that would calm the temper tantrums, he could not focus anymore and was more just trying to figure out where the other horse was and why it felt different, since every horse is different”.

Discussion

The staff at Hooves of Hope showed an amazing sense of involvement and passion for all of their riders that attend TR, including their riders with ASD. When matching up a child with a horse for their TR lesson, the faculty at Hooves of Hope explained they first consider the physical aspects of the child that match up with a specific horse. Once this is taken into consideration, the emotional bond can then be examined throughout time in order to see if positive therapeutic outcomes are able to be maximized in TR. Although the staff and parents believe they can tell that the children are able to form an emotional bond with the horse, the results of this study are unable to confirm that the emotional bond between a horse and a child

with ASD during a TR session is something that has to be established over time in order to be significant. The questions asked in the questionnaire did not reflect exactly what the author's hypothesis was hoping for; which brought new and unexpected conclusions. The responses indicated that some children have the ability of forming emotional bonds quicker than others which would make the emotional bond significant quicker than others.

Therapists and certified Therapeutic Riding Instructors might aim to use the same horse for many reasons. Children with the diagnosis of ASD are overly dependent on routines and are additionally highly sensitive to changes in their environment (American Psychiatric Association 2013), so changing the horse could be disruptive to their structured routines in their TR lessons. Some children with ASD are non-verbal or have difficulties in establishing their own vocabulary. With saying this, the children presented in this study have trouble remembering and saying names. If they use the same horse each week, they may be able to remember their name and practice it without learning a new name each week.

Every child with ASD is different in their own special way and every horse is different as well. When working with these intriguing children, therapists should not only pay attention to the formation of emotional bonds, but also the other beneficial values of TR. The sensory stimulation provided by the horse motivates children with ASD to cooperate and riding the horse heightens the development of strength as the child constantly adjusts his/her body to stay on and control the horse during changes in speed, incline and direction change (Smith 2017). Through TR, children with ASD are able to learn the importance of communication skills and how to read and convey nonverbal social cues, a skill that is often hard for them (Chung 2015). Even though the emotional bond is fascinating to explore, TR offers many other positive therapeutic outcomes as previously mentioned that should be equally highlighted and explored.

Limitations

The author of this study did not ask for full diagnosis information of the children or parent participants. With this being said, the severity of the children's diagnosis was not included in this study, or if they had other disabilities. A number of medical and behavioral issues frequently occur with ASD, including anxiety, depression, attention-deficit/hyperactivity disorder, gastrointestinal problems, sleep disturbances and epilepsy ("Autism's Associated Medical Conditions" 2012). A small sample size of two parents/guardians and one staff member made it difficult to generalize to other facilities or be able to draw definite conclusions. The staff member and parents/guardians may have had personal bias towards some questions or may have not had enough experience to answer thoroughly. Using email as the method of collecting data also limited the pool of participants to those who had an email.

Since this study only accessed one facility to obtain participants, consideration had to be taken that every facility has different methods to their lessons and how they decide which horse is used for each child. With time constraints on the completion of this study, the author elected to gather participants through the convenience of email. Potential participants receiving this email may not have been comfortable disclosing personal information via email, compared to how they may have felt if the questionnaire was given in the form of a physical interview. Although the parents were asked how long their children have been attending TR lessons, the questionnaire did not include personal facts such as the age of the participants, or how long they have been attending TR lessons at Hooves of Hope specifically. Since other facilities could have different methods to their practices, this information could have been a good indicator at how comfortable the children were around the horses and the faculty at Hooves of Hope, and how much time they have had to open up and accept the therapeutic benefits from TR at this particular facility.

Conclusions of the Study

After reviewing the answers from the parent questionnaire and the staff phone interview, the responses nevertheless refuted the initial hypothesis, but have brought attention to a few key aspects of TR with children with ASD that was not considered when beginning this case study. The emotional bond formed between the horse and a child with ASD that was noticeable when collecting the data is probably able to be formed due to the instructor's involvement in the lesson. Children with ASD have difficulties forming emotional bonds and expressing them to others so there is no specific way to truly tell if an emotional bond is formed. The instructors can infer from her own experiences that an emotional bond may be there, but since some of these children are non-verbal, there is no way to definitely proving that an emotional bond is formed. Also, the instructor is responsible for choosing the horse, telling the child what to say to the horse and what to do to the horse and encouraging them to communicate, so it is problematic to say that the emotional bond is naturally formed between the horse and the rider.

Since every child is different: some are verbal, some are non-verbal, some emotionally bond well with others, and some don't at all, this case study is not able to draw exact conclusions that are relevant to every child with ASD who participate in TR. Some children might not even respond well to this type of therapy at all or might equally benefit from other forms of therapy. When asked the question (2), "Compared to attending other forms of therapy (if applicable), how does your child seem to respond to therapeutic riding?" from the parent/guardian questionnaire, Parent 1 responded by saying, "She seems to enjoy her equine based and clinic based therapies equally. On the other hand, Parent 2 answered the same question by saying, "She loves Hooves of Hope." The difference between these two responses shows that every child is different in their preferences and how they respond to certain therapy approaches.

Next, one of the research questions wanted to find out if a child emotionally does bonds to a specific horse, is there a direct correlation to benefits from TR? From the results of the parent questionnaire and staff phone interview script, a correlation can not be made because of the other two conclusions previously mentioned. The gait of the horse alone allows for the child's motor abilities to improve without even physically doing anything besides balancing in the saddle. This is one of the benefits the staff sees and hears from the parents each week, whether their child is capable of forming emotional bonds or not because they notice them walking a lot more balanced than before they arrived. Both the parents and staff explained that the children that are more aware of their emotions and are able to express them are always happier and confident, but neither of them mentioned this was because they bonded with their horse. Their reasoning was more just because they felt in control of the horse and just simply had fun while riding. This brought about the realization that child's joy in an activity is worthwhile and could be a way to measure if TR is measurable in the future.

Future Research

This study suggests direction for further research to consider the severity of the children's diagnosis along with their age and how long they have attended TR lessons. If more information was to be added to this case study or it was conducted again, the severity of each child's diagnosis would offer more detailed results. It was difficult to truly be able to tell how well the child benefited from TR because there was not enough information to compare their initial bonding skills to their resulting bonding skills. If a future study was conducted, more time could be spent measuring the emotional bonding skills of a child with ASD in a therapy setting other than TR, such as at home or hospitalized therapy. Then when figuring out how this child bonds prior to TR, enroll them in TR and measure their bonding skills after a duration of time. The staff

at Hooves of Hope explained that they are always reading articles and looking up research to find out ways to improve their lessons. They also already do strive to use the same horse each week, but if there was research that proved that or supported it, they would definitely be more aware when changing out the horse if they do not have a specific reason for doing so.

Conclusion

This study aimed to investigate whether or not the emotional bond between a horse and a child with ASD during a TR session is something that has to be established over time in order to be significant. The research questions attempted to find answers that would encourage TR instructors and therapists to aim to use the same horse for each lesson in order to maximize the positive therapeutic outcomes. After reviewing the responses to the parent questionnaire and the staff phone interview, the hypothesis was not able to be confirmed but suggested direction for future research. Parent 2 stated that his/her child has attended TR lessons for as many as ten years, which could be one of the reasons why the parent said that the child had good bonding skills; however, there was not any information that could confirm this compared to Parent 1 whose child has attended TR for four years and struggled at bonding. The literature review showcased several case studies and research papers that highlight various AAA approaches along with aspects of ASD that therapists and/or researchers should be aware of when conducting further research. This study reflected ways TR can be beneficial for children with ASD, but due to limitations such as the exclusion of full diagnosis information and a small sample size, it neglected to confirm the initial hypothesis for the ASD population as a whole. Ultimately, this study found that there can be other factors that go into a child with ASD benefiting positively from TR other than solely an emotional bond with the horse. A direct correlation was not found in this study between the emotional bond and other constructive therapeutic outcomes.

References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.
- Aronoff, E., Hillyer, R., & Leon, M. (2016). Environmental enrichment therapy for autism: Outcomes with increased access. *Neural Plasticity*, 1-23.
- Autism's associated medical conditions. (2012, July 25). Retrieved from <https://www.autismspeaks.org/what-autism/treatment/treatment-associated-medical-conditions>
- Bass, M. M., Duchowny, C. A., & Llabre, M. M. (2009). The effect of therapeutic horseback riding on social functioning in children with autism. *Journal of Autism & Developmental Disorders*, 39(9), 1261-1267.
- Bizub, A. L., Joy, A., & Davidson, L. (2003). 'It's Like Being in Another World': Demonstrating the benefits of therapeutic horseback riding for individuals with psychiatric disability. *Psychiatric Rehabilitation Journal*, 26(4), 377.
- Borgi, M., Loliva, D., Cerino, S., Chiarotti, F., Venerosi, A., Bramini, M., & ... Cirulli, F. (2016). Effectiveness of a standardized equine-assisted therapy program for children with autism spectrum disorder. *Journal of Autism & Developmental Disorders*, 46(1), 1-9.
- Boyd, L., & le Roux, M. (2017). 'When he's up there he's just happy and content': Parents' perceptions of therapeutic horseback riding. *African Journal of Disability*, 6(1), 1-9.
- Crossman, M., & Kazdin, A. (2016). Additional evidence is needed to recommend acquiring a dog to families of children with autism spectrum disorder: A response to Wright and colleagues. *Journal of Autism & Developmental Disorders*, 46(1), 332-335.

- Chung, S. (2017, September 15). The Benefits of Equine Therapy. Retrieved from <http://blog.stageslearning.com/blog/can-horseback-riding-help-children-with-autism>
- Cuypers, K., De Ridder, K., & Strandheim, A. (2011). The effect of therapeutic horseback riding on 5 children with attention deficit hyperactivity disorder: A Pilot Study. *Journal of Alternative & Complementary Medicine*, 17(10), 901-908.
- Funahashi, A., Gruebler, A., Aoki, T., Kadone, H., & Suzuki, K. (2014). Brief report: The smiles of a child with autism spectrum disorder during an animal-assisted activity may facilitate social positive behaviors- Quantitative analysis with smile-detecting interface. 44(3), 685-693.
- Hayes, T. (2015). How horses help us heal. Retrieved from <https://equusmagazine.com/behavior/horses-heal-28963>
- Holm, M., Baird, J., Kim, Y., Rajora, K., D'Silva, D., Podolinsky, L., & ... Minshew, N. (2014). Therapeutic horseback riding outcomes of parent-identified goals for children with autism spectrum disorder: An ABA' Multiple case design examining dosing and generalization to the home and community. *Journal of Autism & Developmental Disorders*, 44(4), 937-947.
- Lanning, B., Baier, M., Ivey-Hatz, J., Krenek, N., & Tubbs, J. (2014). Effects of equine assisted activities on autism spectrum disorder. *Journal of Autism & Developmental Disorders*, 44(8), 1897-1907.
- Lundquist Wanneberg, P. (2014). Disability, riding, and identity: A qualitative study on the influence of riding on the identity construction of people with disabilities. *International Journal of Disability, Development & Education*, 61(1), 67-79.

- Nqwena, Z., & Naidoo, R. (2016). The effect of therapeutic horseback riding on heart rate variability of children with disabilities. *African Journal of Disability*, 5(1), 1-8.
- O'Haire, M. (2013). Animal-assisted intervention for autism spectrum disorder: A systematic literature review. *Journal of Autism & Developmental Disorders*, 43(7), 1606-1622.
- O'Haire, M. E., McKenzie, S. J., McCune, S., & Slaughter, V. (2014). Effects of classroom animal-assisted activities on social functioning in children with autism spectrum disorder. *Journal of Alternative & Complementary Medicine*, 20(3), 162-168.
- Rigby, B. R., & Grandjean, P. W. (2016). The efficacy of equine-assisted activities and therapies on improving physical function. *Journal of Alternative & Complementary Medicine*, 22(1), 9-24.
- Silva, K., Correia, R., Lima, M., Magalhães, A., & de Sousa, L. (2011). Can dogs prime autistic children for therapy? Evidence from a single case study. *Journal of Alternative & Complementary Medicine*, 17(7), 655-659.
- Smith, B. A. (2017). Benefits of Horse Therapy for Kids with Autism. Retrieved from <https://www.livestrong.com/article/85331-benefits-horse-therapy-kids-autism/>
- Smith, C. (2018). Learn About EAAT: Learn About Therapeutic Riding. Retrieved from <https://www.pathintl.org/resources-education/resources/eaat/198-learn-about-therapeutic-riding>
- Solomon, O. (2015). 'But-He'll Fall!': Children with autism, interspecies intersubjectivity, and the problem of 'being social'. *Culture, Medicine & Psychiatry*, 39(2), 323-344.
- Torrado, J. C., Gomez, J., & Montoro, G. (2017). Emotional self-regulation of individuals with autism spectrum disorders: Smartwatches for monitoring and interaction. *Sensors* (14248220), 17(6), 1-29.

Ward, S., Whalon, K., Rusnak, K., Wendell, K., & Paschall, N. (2013). The association between therapeutic horseback riding and the social communication and sensory reactions of children with autism. *Journal of Autism & Developmental Disorders*, 43(9), 2190-2198.

What is Autism Spectrum Disorder (ASD)? (2018). Retrieved from

[http://www.alpinelearninggroup.org/What-is-](http://www.alpinelearninggroup.org/What-is-ASD.php?gclid=EAIaIQobChMIzJ3Dy6nj2gIVnbXACH1TYwoyEAAYASAAEgIcyfD_)

[ASD.php?gclid=EAIaIQobChMIzJ3Dy6nj2gIVnbXACH1TYwoyEAAYASAAEgIcyfD_](http://www.alpinelearninggroup.org/What-is-ASD.php?gclid=EAIaIQobChMIzJ3Dy6nj2gIVnbXACH1TYwoyEAAYASAAEgIcyfD_)

BwE

Appendices

Appendix A: Parent Cover Letter

Sarah K. Cox
Eastern Kentucky University
351 High St
Richmond, KY 40475

Dear Potential Participant,

My name is Sarah Cox, and I am a senior student at Eastern Kentucky University. I am a part of the Honors Program as a Health Science major. Along with my major, I am pursuing a minor in Horses, Humans and Health as well as a minor in Psychology. Following my graduation in May 2018 I plan to apply to the Masters of Science Program in Occupational Therapy. I am currently working on an undergraduate thesis research project titled, The Emotional Bond Between a Horse and a Child with Autism During Therapeutic Horseback Riding. This is under the mentorship of Dr. Leslie J. Hardman, a faculty member in the Department of Occupational Science and Occupational Therapy. The information I will receive from the staff at Hooves of Hope and potential parent participants will help me to find out if the emotional bond between a horse and a child on the Autism Spectrum is a key component in maximizing therapeutic benefits.

You are receiving this letter because your child meets the research project criteria, diagnosis of ASD and therapeutic riding participant at Hooves of Hope, as identified by Blair Newsome, Director of Hooves of Hope. Mrs. Newsome is sending you the letter and I, as the primary researcher, do not know your identity unless you self-identify on the questionnaire or in an email to me. Participation in the project is voluntary. If you choose to participate, information you provide will be analyzed and reported on with no personally identifying information.

If you decide to complete this questionnaire, your identity will remain anonymous- for Mrs. Newsome is the one sending the letter to you. All of the questions attached are completely voluntary and you do not have to complete every question if you do not feel comfortable answering. After sending this letter to other families, all of the information will be combined in the body of my research and compared to one another, including the results from the Hooves of Hope staff questionnaire. If you are interested in participating, please know that I do not ask you to reveal any names of yourself, your child or any of the staff at Hooves of Hope. Completion of this study should be sent to myself, the primary researcher, within 5-7 days. Your responses if not used in my final research project will be kept secure. If you have any concerns regarding the questions or the nature of my project, please feel free to contact me at

sarah_cox@mymail.eku.edu or (513)-652-2195.

Sincerely,
Sarah Cox
Honors Student, Eastern Kentucky University

Appendix C: Staff Phone Interview Script

Verbal Communication Script: Hooves of Hope Staff

- “Can you walk me through what a normal lesson looks like for one of your riders on the Autism Spectrum, from the time they arrive, to the time they leave?”

- “Describe the interactions you witness between a rider on the Autism Spectrum and the horse during a therapeutic riding session”

- “In regards to your riders on the Autism Spectrum, what are some of the benefits you see each week after attending a lesson?”

- “How do you determine which horse you use for each rider every week?”

- “Do you consistently use the same horse each week? If yes/no, why?”

- “If you have ever changed the horse that is used in a specific rider’s lesson, did they notice? If so, describe noticed changes, if any, in the rider’s behavior during the lesson?”

- “My research is exploring whether or not the emotional bond between the horse and the child with Autism during a therapeutic riding lesson is a key component for therapeutic benefits. Do you observe any of your riders with Autism forming an emotional bond with their horse?” Describe.

- “If a rider has an emotional bond with a specific horse, do you try to use that horse each week? If so, do you notice a direct correlation to therapeutic benefits?”

- “Does the rider engage in any activities that encourage them to bond with the horse?”

- “How can you determine whether the rider is bonding/has a bond with the horse?”

- “Do you notice immediate benefits from therapeutic riding following the rider’s therapy session?”

- “If there was research to prove that using the same horse each week during therapeutic riding maximized therapeutic benefits, would you strive to use the same horse each week?”