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Effects of an Equine Assisted Activities Program on Youth with Emotional Disturbance;a Pilot Study

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EFFECTS OF AN EQUINE ASSISTED ACTIVITIES PROGRAM ON YOUTH WITH EMOTIONAL DISTURBANCE: A PILOT STUDY

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DEDICATION

I dedicate this dissertation to my husband, Matthew Krug, who has provided unlimited love, support, and encouragement throughout this entire process.

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ABSTRACT

This study evaluated the effects of a 10-week Equine Assisted Activities (EAA) program on special education students (aged 9 to 15) identified as Emotionally Disturbed (ED) who were enrolled in an alternative school. A control group of special education students receiving treatment-as-usual was included. The Behavior Assessment Scale for Children, Second Edition (BASC-2; Reynolds & Kamphaus, 2004) measured change in emotional, behavioral, and school functioning, and adaptive skills. The Self-Report of Personality (SRP), Teacher Report Scale (TRS) and Parent Report Scale (PRS) forms of the BASC-2 (Reynolds & Kamphaus, 2004) were used to triangulate outcome data reported by the students, teachers, and parents. Two central hypotheses were tested. First, the treatment group would evidence significant reductions in emotional, behavior, and school problems and significant increases in adaptive skills as compared to the control group at post-test; these improvements, in turn, would be maintained at a three-month follow-up. Second, the treatment group would evidence significantly fewer missed school days, higher GPAs, and higher behavioral point percentages at post-test in comparison to the control group; these improvements, in turn, would be maintained at a three-month follow-up. Results indicated that, according to teachers' ratings, participants who participated in 10 weeks of EAA intervention had statistically significant reductions in Externalizing Problems scores and marginally significant reductions in Behavior Symptoms Index BASC composite scores. Results were not significant for all other variables; however,

students tended to under-report symptoms and over-report adaptive skills. Although there are over 40,000 individuals with disabilities receiving services from EAA programs every year, there is scant experimentally designed research which has tested the effects of such programs. The present study, therefore, makes an important contribution to the field of EAA research. Future directions for research and clinical practice were explored.

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CHAPTER 1

INTRODUCTION

Introduction

The Individuals with Disabilities Education Act (IDEA: originally called the Education for all Handicapped Children Act, Public Law 94-142, 1975) is a federal mandate to provide an appropriate, free, public education to all students (Coutino & Denny, 1996). During the 2007-2008 academic year, over 6 million children aged 3 to 21 years were served under IDEA (U.S. Department of Education, 2010[b]). The U.S. Department of Education's Office of Special Education Programs (OSEP) classifies disabilities according to 13 categories: autism, deaf-blindness, developmental delay, emotional disturbance, hearing impairment, mental retardation, multiple disabilities, orthopedic impairment, other health impairment, specific learning disability, speech or language impairment, traumatic brain injury, and visual impairment (U.S. Department of Education, 2010[a]). Of the total number of students served under IDEA in 2007-2008, 442,000 were identified as having Emotional Disturbance (ED) (U.S. Department of Education, 2010[b]). The following criteria must be met in order to be identified as ED:

> A condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree that adversely affects a child's educational

> performance: an inability to learn that cannot be explained by intellectual, sensory, or health factors; an inability to build or maintain satisfactory interpersonal relationships with peers and teachers; inappropriate types of behavior or feelings under normal circumstances; a general pervasive mood of unhappiness or depression; and a tendency to develop physical symptoms or fears associated with personal or school problems. Emotional disturbance includes schizophrenia. However, the term does not apply to children who are socially maladjusted, unless it is determined that they have an emotional disturbance (U.S. Department of Education, 2010[a]).

Youth with ED constitute a heterogeneous group with a broad range of externalizing behaviors (e.g. disruptive behavior disorders) and internalizing behaviors (e.g. withdrawal, depression) (Wagner, 2005). Youth identified as having ED are only a subgroup of children with mental illness; not only must there be a behavioral disorder and/or emotional disturbance, but the disorder must occur over a long period of time, it must be considered "severe," and it must negatively impact the student's educational performance (Wagner, 1995). The process of identifying students with ED usually begins with a referral from a teacher or other school staff member to an assessment process to identify the student's strengths and weaknesses to determine qualification for specialized services and to provide recommendations for educational services (Wagner, 1995). This assessment process, called a Multi-Factored Evaluation (MFE; Ohio Legal Rights Service, 2012) involves an integration of background information including family history and results from previous assessment and psychological testing conducted by a school psychologist (Wagner, 1995). Once a student is identified as having a

disability that qualifies for special education services, an Individualized Education Plan (IEP) is developed to outline goals and services to be provided.

Longitudinal studies indicate that students identified as ED often demonstrate high dropout/low graduation rates, a high percentage of involvement in the legal system, low employment rates, and poor academic performance and achievement of any group of students in public education (Bradley, Doolittle, & Barolotta, 2008; Nelson, Jordan, & Rodrigues-Walling, 2002). The National Longitudinal Transition Study (NLTS) was mandated by Congress in 1983 to assess the longitudinal outcomes of youth with disabilities (Blackorby & Wagner, 1996). The NTLS assessed the areas of employment, postsecondary education, and residential independence by comparing outcomes of youth with disabilities at two years after leaving school and then three years later. Where possible, comparisons were also made with peers in the general population (Blackorby & Wagner, 1996). Participants included over 8,000 youth aged 13-21 who were receiving special education services. Compared to the general population, youth in special education were less likely to have attended college, less likely to be living independently, and achieved lower levels of education attainment (Blackorby & Wagner, 1996).

For youth identified as ED (then labeled SED, or Severely Emotionally Disabled), outcomes were particularly poor, in comparison to youth with other disabilities and the general population (Wagner, 1995). In comparison to youth with other disabilities and youth in the general population, and controlling for race, gender, and socioeconomic status (SES), youth with ED while in high school demonstrated higher rates of disconnectedness from school including being least likely to belong to clubs or social groups at school, higher rates of absenteeism, lower GPAs and the highest rate of class

failure (Wagner, 1995). Postsecondary assessment also revealed poor outcomes for youth with ED in comparison to youth with other disabilities and youth in the general population. At three and five years after leaving high school, youth with ED were less likely to have enrolled in some form of postsecondary education program (even among high school graduates), less likely to be employed regardless of SES, less likely to be registered to vote, and less likely to have achieved residential independence (Wagner, 1995). Also, youth with ED had higher arrest rates and the arrest rate "climbed steeply" from three to five years after leaving high school, were "twice as likely as youths with other disabilities to be living in a correctional facility, halfway house, drug treatment center, or on the street, and females with ED were more likely to be mothers than the general population" (Wagner, 1995, p. 103).

IDEA stipulates that students with disabilities should be educated in the least restrictive setting, which means alongside their non-disabled peers whenever possible, and removal from regular education settings should occur only when the intensity or severity of the disability requires other settings (Coutino & Denny, 1996). Alternative education settings include a continuum of nine options from least to most restrictive: regular class, resource room, separate class, separate facility, residential, and homebound environments (Coutino & Denny, 1996). Youth with ED represent higher rates of segregated placement than youth with learning disabilities or youth in all disability groups combined (Coutine & Denny, 1996). In the academic year 2007-2008, approximately 3% of youth aged 6-21 served under IDEA were enrolled in separate schools for students with disabilities and approximately 13% of students with ED were educated in a separate school (U.S. Department of Education, 2010[c]).

The financial cost of assessing students for qualification for special education services is high, the individual and social costs of failure are high, and early intervention is important (Wagner, 1995). Students with emotional and behavioral problems continue to experience less than adequate treatment in the educational system (Nelson, et al., 2002). For many ED students, disruptive behaviors result in suspensions and expulsions, while others are steered into alternative education programs that may not meet their needs (Nelson, et al.). Results of the NLTS indicated the need for improvement in services provided to students with ED. Suggestions for improvement included increasing parent involvement, vocational education, placement options, collaboration with mental health and social services, and social integration (Wagner, 1995).

Longitudinal studies indicate youth with ED tend to fare poorly while in school, many are segregated from their regular education peers in a continuum of placements, and outcomes after leaving high school are poor (Wagner, 1995). In the past decade several legislative initiatives have called for improvements in the mental health and education systems for youth with ED (Reddy, Newman, DeThomas, & Chun, 2009). The President's New Freedom Commission on Mental Health (2003) and the U.S. Department of Health and Human Services (2000) have called for changes in the mental health system "emphasizing the early identification and intervention of children at-risk for and with ED in school and public health care settings" (Reddy, et al., 2009). The American Psychological Association (2003) called attention to children's mental health needs in schools with the Interdivisional Task Force on Children's Mental Health and the reauthorization of IDEA (2005) identified a broad range of educational and related services for youth with ED (Reddy, et al., 2009). Despite national attention on the needs

of youth with ED, costs continue to be high and outcomes continue to be poor. Clearly, there is a need for creative and innovative interventions for this population

In the late 1960s and early 1970s child psychologist Boris Levinson reported the use of dogs was effective in engaging children in therapy and in schools (Friesen, 2010; Levinson, 1969; Levinson, 1971). Now often referred to as the pioneer for Animal Assisted Therapy (AAT), Levinson's published work included mostly anecdotal evidence. Since that time there has been a substantial increase in the field of Animal Assisted Activities (AAA) and AAT, in both practice and research, and numerous studies report positive effects of AAA with children with disabilities, including ED (e.g., Anderson & Olson, 2006; Esteves & Stokes, 2008; Jalongo, Astorino, & Bomboy, 2004; Jalongo, 2005; Mallon, 1994).

As the field of AAA has expanded, so has the field of Equine Assisted Activities (EAA). Where AAA generally involves companion animals such as dogs, in EAA horses are partnered with humans as facilitators of therapeutic intervention and educational services (North American Riding for the Handicapped Association, 2007). Typical EAA programs incorporate learning horsemanship skills (e.g., grooming, sweeping barn aisles) and riding skills (e.g. mounting, holding reins correctly) within the stable milieu. Specific EAA programs have also been developed including Equine-Facilitated Psychotherapy (EFP), Equine-Facilitated Learning (EFL), and Hippotherapy (North American Riding for the Handicapped Association, 2007). These types of programs incorporate horses and horseback riding into psychotherapy, education, and medical interventions.

As the body of literature on the benefits of AAA continues to grow, scholarly research investigating the effects equine assisted activities (EAA) is just beginning. Currently there are many stories in books, newspaper and magazine articles, web sites, and organizational newsletters describing the beneficial effects of participation in EAAs on individuals with various disabilities; however, practitioners and researchers in the field of EAA recognize the need and call for increased and improved empirical research on the effects of EAA (e.g., Kaiser, Spence, Lavergne, and Vanden Bosch, 2004; Klontz, et al., 2007; Lehrman & Ross, 2001; Miller & Alston, 2004).

The majority of published empirical research has focused on the impact of EAA on physical and neuromuscular issues, rather than on psychosocial effects (Kaiser, et al., 2004). Regarding psychosocial research and EAA, the majority of scholarly research has been qualitative, with results indicating positive effects associated with participation in equine-facilitated therapeutic programs (e.g., Kaiser, et al., 2004). Quantitative research has been scant, with mixed results and methodological problems such as small sample size and the lack of a control group. There is a need for quantitative research on the effects of EAA on various populations.

Empirical evidence suggests AAA programs have positive effects on children, including those with disabilities and in education settings (e.g., Anderson & Olson, 2006; Esteves & Stokes, 2008; Jalongo, Astorino, & Bomboy, 2004; Jalongo, 2005; Mallon, 1994). There is both strong anecdotal evidence of the positive effects of EAA on children with disabilities and a need for creative and innovative interventions for youth with ED. Treatment professionals and researchers propose EAA programs may be effective in engaging and working with youth of various populations, including at-risk

youth (Hallberg, 2008). For example, Kaiser and colleagues (2004) suggested EAA programs might be useful in reducing anger in at-risk children or other children with anger problems. There is a need for further empirical research on the effects of participation in an EAA program on youth with ED.

Purpose of the Study

The purpose of the present study was to examine the effectiveness of an already-established EAA program in improving behavioral, emotional, and academic functioning in youth with ED who were already receiving education and mental health services in a day treatment program. This study is significant for two reasons. First, existing quantitative research on EAA is minimal, and the studies that currently exist report mixed results and have methodological flaws such as small sample sizes and the absence of a control group. The current study maintains a stronger design that includes a control group, a larger sample size, valid and reliable measures, and the addition of parent and teacher rating scales to youth self-report rating scales. This study contributes to the existing literature and informs future research directions. Second, the results will provide data regarding the effectiveness of participation in an EAA program in reducing emotional, behavioral, and school problems, increasing adaptive skills and personal adjustment, and improving academic performance and school attendance in school-age children identified as having ED and receiving services in a day treatment alternative school program. Clinically meaningful differences found between experimental and control groups at post-test and follow-up would provide support for the addition of an EAA program to existing special education services, identifying an effective intervention strategy for this challenged population.

CHAPTER 2

LITERATURE REVIEW

This chapter will begin with a description of the development of AAA programs and the outgrowth of services over time. Next, a description of EAA will ensue, including a brief addressing of theoretical frameworks. Finally, a review of empirical literature on EAA will be provided.

Animal Assisted Activities (AAA)

Throughout history, there are examples of animals being called upon to aid in the healing of human illness. In Native American history, animal guardian spirits belonging to a shaman were called upon for healing. In the 19th century there was a popular belief that pets served a socialization function for children and the mentally ill, and animals were sometimes incorporated into institutional care (Serpell, 2006). In the second half of the 20th century, cultural changes including (but not limited to) the industrialization of farming and agriculture and an increase in the use of animals in biomedical research, placed the human-animal relationship in an unsettled place (Rollin, 2006). This relationship later changed and a moral concern for animals and their wellbeing emerged as a major social and ethical movement (Rollin, 2006). Other cultural shifts such as urbanization, the breakdown of families, and extended life span led to animals filling

emotional voids and, in many cases, becoming family members (Rollin, 2006). Throughout more recent times, animals have become powerful allies in the field of mental health. Often seen as nonjudgmental, tolerant, loyal, and loving, animals are often a natural vehicle for connecting with those who are mentally and physically disabled (Rollin, 2006).

The Delta Foundation was formed in 1977 in Portland, Oregon by a small group of psychiatrists, doctors, and veterinarians who shared their observations about the positive impact pets had on their clients' health and happiness, and collectively they recognized the important need for scientific research to support this anecdotal evidence (Delta Society, 2009). In 1981 the name was changed to Delta Society "to symbolize an expanding group of interested researchers and medical practitioners in both human and animal fields" (Delta Society, 2009). Today, Delta Society is a 501(c)(3) nonprofit organization that states is mission is to advance human health and well-being through interactions with therapy, service, and companion animals (Delta Society, 2009).

Delta Society defines animal assisted activities (AAA) as "casual 'meet and greet' activities that involve pets and their handlers visiting people" (Delta Society, 2008). Animal assisted therapy (AAT) is defined as "a goal-directed intervention directed and/or delivered by a health/human service professional with specialized expertise, and within the scope of practice of his/her profession" and is "individualized to meet the needs of a particular person or medical condition and to improve human physical, social, emotional, and/or cognitive functioning" (Delta Society, 2008).

Animal Assisted Interventions (AAI) is a commonly used umbrella term for different activities in which interaction with animals is incorporated into therapeutic and

educational interventions (American Psychological Association, 2010). AAI broadly includes both trained professionals and volunteers, and always includes certified animals, and has been incorporated in settings such as nursing homes, hospitals, schools, prisons, and counseling centers (APA, 2010). Animal-assisted therapy (AAT), as described above, is considered to be a type of animal-assisted activity (AAA; APA, 2010). The growing interest in the human-animal connection is reflected in the establishment of American Psychological Association Division 17, Society of Counseling Psychology Section: Animal and Human Interaction (AHI): Research and Practice (APA, 2010).

Equine Assisted Activities (EAA)

Just as practitioners and researchers have recognized the value of animal assisted interventions, the value of equine assisted activities (EAA) has been acknowledged as well. Throughout history, humans and horses have maintained special relationships. In the past people relied on horses for farming, transportation, and battle, and in the present they are enjoyed for recreation, competition, and entertainment purposes (Hallberg, 2008). Although humans have recognized the therapeutic benefits of interacting with horses for centuries, it has only been in the past twenty years or so that EAA programs have been organized through governing bodies which include certification processes and ethical guidelines (Hallberg, 2008). Similar to AAA, in the field of EAA horses are partnered with humans as facilitators of therapeutic intervention and educational services (North American Riding for the Handicapped Association, 2007). Typical EAA programs integrate horsemanship, or "ground" skills such as grooming and horse maintenance, with horseback riding skills, and have been used with diverse populations including autism spectrum disorders, attention-deficit/hyperactivity disorder, attachment

disorders, depression, schizophrenia, and other behavioral, emotional, and psychiatric disorders. EAAs are also used with populations such as armed service veterans, children and families dealing with cancer, and schools (Fieldstone Farm Therapeutic Riding Center, 2009; North American Riding for the Handicapped Association, 2007). Specific EAA programs including Equine Facilitated Psychotherapy, Equine Facilitated Learning, and Hippotherapy have been developed to integrate human-equine interaction into psychotherapy, education, and medical interventions.

Equine-Facilitated Psychotherapy (EFP).

Equine-facilitated psychotherapy (EFP), also called Equine-Assisted Psychotherapy (EAP), is one type of EAA. Founded in 1996 as a section of NARHA, the Equine Facilitated Mental Health Association (EFMHA) provides EFP to individuals with mental health problems (North American Riding for the Handicapped, 2007). EFP can be defined as "experiential psychotherapy that includes equine(s)" and it is provided by a licensed mental health professional who is either dually licensed as an equine professional, or who works with a licensed equine professional (North American Riding for the Handicapped Association, 2007). Typically, the psychotherapist "integrates equine activities within their broader theoretical framework" (Klontz, et al., 2007, p. 258). For example, Klontz and colleagues (2007) described an Equine Assisted Experiential Therapy (EAET) program based on psychodrama. The authors indicated horses "elicit a range of emotions and behaviors in humans" and "offer a variety of opportunities for projection and transference," as well as metaphor, due to their behaviors (Klontz, et al., 2007, p. 259). The authors stated "a client's interpretation of a horse's movements, behaviors, and reactions determines the meaning of the metaphor and, as

such, provides a portal for the resolution of unfinished business by bringing forth-and addressing-transference reactions in the here-and-now of therapy" (Klontz, et al., 2007, p. 259).

Equine-Facilitated Learning (EFL).

Equine-facilitated learning (EFL) is another type of EAA and can be described as "an educational approach that includes equine-facilitated activities incorporating the experience of equine/human interaction in an environment of learning or self discovery" (North American Riding for the Handicapped Association, 2007). An EFL session generally involves interacting with the horse from the ground, learning communication skills and building a partnership with the horse which can result in improved self-esteem, confidence, and self-awareness (Equine Facilitated Learning Organisation, 2009). EFL curriculums generally integrate subjects such as mathematics or reading with horse-related themes and activities.

Hippotherapy.

Hippotherapy is yet another type of EAA. Taken from the Greek word "hippos," meaning "horse," hippotherapy is a medical treatment intervention that uses the movement of the horse in physical, occupational, and speech-language therapy sessions for people with disabilities (American Hippotherapy Association, 2007). The use of hippotherapy as a therapeutic intervention has resulted in improvements in muscle tone and coordination, balance, posture, motor development, and emotional well-being (American Hippotherapy Association, 2007). The American Hippotherapy Association, Inc. was incorporated in 1993 and consists of physical, occupational, and speech-language therapists, who promote research, education, and communication about using

the horse as a treatment approach for diagnoses including Cerebral Palsy, Multiple Sclerosis, Developmental Delay, Traumatic Brain Injury, Stroke, Autism, and Learning or Language Disabilities (American Equestrian Alliance, 2009).

EAAs abound across the country and are used as therapeutic and educational interventions for people with disabilities including mental illness, learning problems, physical disabilities, and those on the autism spectrum, as well as special populations such as veterans and individuals with cancer. Although the fields of AAA and EAA have solid organizational development and a strong following, there is no current agreed-upon theoretical model to explain why these interventions are effective.

Theoretical Frameworks

The fields of AAA and EAA have well-developed programs, operationalized terms, governing bodies that promote guidelines for safety and accreditation, and a large population of professionals and clients who purport AAA and EAA provide important and effective therapeutic interventions for many different populations. Currently there is a lack of a "unified, widely accepted, or empirically supported theoretical framework for explaining how and why relationships between humans and animals are potentially therapeutic" (Kruger & Serpell, 2006, p. 26). A variety of factors have been proposed such as animals having unique intrinsic attributes that contribute to therapy, animals as living tools used to facilitate cognitive and behavioral changes such as changes in self-concept, the acquisition of new skills, and the acceptance of personal agency and responsibility elicited by interactions with animals (Kruger & Serpell, 2006).

Animals have unique intrinsic attributes that make them effective in therapeutic interventions and that are "not otherwise possible through human interaction and

intervention alone" (Friesen, 2010, p. 265). These attributes include anxiolytic effects, maintaining a perceived nonjudgmental nature, facilitating social connections including the client-therapist relationship, and eliciting nurturing feelings and behavior.

Interactions with, or even the presence of, animals can result in the reduction of anxiety and arousal (Kruger & Serpell, 2006). Friedman, Katcher, Thomas, Lynch, and Messent (1983) found that the presence of a dog lowered blood pressure and heart rates when a child read aloud. Nagengast, Baun, Megel, and Leibowitz (1997) found greater reductions in blood pressure, heart rate, and behavioral distress in children when a dog was present as compared to when a dog was not present. Brickel (1995) asserted that learning theory may be related to the anti-anxiolytic benefits of animals in that a pleasurable activity is self-reinforcing and therefore more likely to occur in the future. Brickel (1982) also suggested that when animals are introduced in a therapeutic environment, the animal may serve as a buffer to anxiety-eliciting stimuli which allows for control over that stimuli, as opposed to withdrawal or avoidance.

AAA and EAA supporters suggest one intrinsic attribute of animals that aids in therapeutic interactions is their perceived nonjudgmental nature (Friesen, 2010). This attribute may affect the power differential that exists between therapist and client, particularly when the client is a child (Friesen, 2010). Because of this nonjudgmental nature, it has been suggested that animals help encourage children's social interactions with peers and adults (Friesen, 2010). As Levinson first observed and reported, the assistance of a dog within the therapy session with a child who was otherwise unresponsive to therapy resulted in the child increasing interactions with the therapist, thus facilitating the child-therapist relationship (1969). Animals may serve as attachment

objects that aid in the therapeutic process, and/or they may serve as transitional objects by "alleviating the stress of the initial phases of therapy by serving a comforting, diverting role until the therapist and patient have developed a sound rapport" (Kruger & Serpell, 2006, p. 30). Within a therapeutic context, animals may also elicit and serve as outlets for nurturing feelings and behavior (Kruger & Serpell, 2006; Mallon, 1994). For example, the presence of a dog in a classroom was found to have offered children a form of social and emotional support (Friesen, 2010).

Theoretical Frameworks: EAA

Additional unique factors also have been identified to provide a theoretical orientation for EAA. Hallberg (2008) and McDaniel (1998) described a multifaceted process of inter-connected factors. These factors include the barn milieu/environment, sense of community, skill-building and mastery, verbal and non-verbal communication, physical activity, and factors related to the horse itself such as its size and non-judgmental nature.

Barn milieu/environment/sense of community.

The barn milieu, with its unique smells, sounds, and space, is a nontraditional setting that engages the senses, can improve motivation, and requires "active participation within and upon the environment" (Engel, 1984, p. 43). Working as part of a team within the barn milieu focuses energy and interactions with peers toward positive accomplishments and responsibility for the care and comfort of the horse is not only intrinsically rewarding, but also serves as a parallel to the importance of caring for oneself (Hallberg, 2008; McDaniel, 1998). EAA programs involve learning to follow directions, work within a group, trust others, and finish tasks, which is proposed to

facilitate learning (Hallberg, 2008; McDaniel, 1998). Working with horses is often intrinsically motivating, which results in changes in behavior that may not have occurred otherwise; while EAAs are therapeutic in nature, they are generally viewed by participants as "pleasurable, fun, and challenging," stimulating motivation (Engel, 1984, p. 46; Hallberg, 2008; McDaniel, 1998).

Skill building/mastery.

Hallberg (2008) and McDaniel (1998) assert that self-esteem and a sense of self-worth grow from mastering new skills and experiencing competence for riding and handling horses. Many individuals who participate in EAA programs have never cared for or ridden a horse before. EAA programs follow a general curriculum where each session builds upon skills from the previous session, resulting in a sense of mastery (Hallberg, 2008; McDaniel, 1998).

Verbal and nonverbal communication.

Individuals working with horses learn how to communicate both verbally and non-verbally with the horses, which results in improved communication skills and increased self-awareness (Hallberg, 2008; McDaniel, 1998). Communication between horse and rider "are enhanced on all sensory levels" (Engel, 1984, p. 43). Examples of this non-verbal communication include learning to ask the horse to move forward by squeezing one's legs, stop by pulling back on the reins, turn one way or the other based on rein pressure, and learning the nuances of how to increase or decrease the speed without changing the horse's gait. Verbal communication includes the use of verbal cues such as "whoa" to stop the horse.

Physical activity/sensory integration.

The physical activity of working with horses while riding and grooming provides physical and emotional benefits similar to engagement in other physical activities, such as stimulation of the cardiovascular system (Engel, 1984, p. 43; Hallberg, 2008). Horseback riding exercises "can be ideal for the development of perceptual-motor coordination and sensory-motor integration" as well (Engel, 1984, p. 41). Horsemanship skills include vigorously brushing the horse and using brooms and shovels to sweep and clean the aisles. Riding skills include mounting the horse and using muscles throughout the entire body to maintain correct posture and position through each gait and signal.

Equine factors.

Equine Assisted Activities incorporate the horse as a therapeutic tool (Schultz, Remick-Barlow, & Robbins, 2007). A horse has innate qualities that may provide opportunity for therapeutic intervention, such as its size, behavioral responses, non-verbal communication, natural tendencies for social structure and hierarchy, and non-judgmental nature. The overwhelming size of a horse may elicit fear and command respect (Schultz, et al., 2007). Horses communicate non-verbally and in subtle ways; a flick of the tail and an ear pinned back is a gentle warning of irritation, while ears loosely falling toward the side and chewing behaviors indicate calm and relaxation. Horses have a natural instinct to function as a herd with a hierarchy or social structure, similar to that of humans.

Just as in a traditional human-human counseling relationship, the relationship established between the horse and participant is emphasized in EAA. Horses' behavior toward and interactions with humans are perceived as non-judgmental, which has a

therapeutic effect similar to that of a human counselor or psychotherapist (Hallberg, 2008 & McDaniel, 1998). It has been proposed that EAA "alters the traditional patient role into a three-part relationship – rider, horse, and therapist" (Hakanson, Moller, Lindstrom, and Mattsson, 2009, p. 44). Along with the impact of the non-judgmental nature, the size of the horse often elicits attention, compliance with rules, respect for space and boundaries, and respect toward others, particularly youth who may not show such respect for other humans, including adult treatment providers and educators (Hallberg, 2008; McDaniel, 1998). Engle noted "under predetermined conditions the rider's control of a large animal is a challenge and provides the power of independence, and some risk, which are growth factors in development" (1984; p. 43). Schultz, et al. (2006) suggest overcoming obstacles in interacting and building relationships with horses "promotes confidence, relationship-skills and problem-solving skills (p. 266).

Review of the Literature

Of all students receiving special education services, those identified as ED have the worst outcomes, both academically and socially, across age and gender (Bradley, et al., 2004; Bradley, et al., 2008). Effective educational and therapeutic interventions are essential to improving the outcomes for ED students (Bradley, et al., 2008). In order to improve outcomes and to push for education reform, there is a need for evidence-based interventions that improve services for ED students (Bradley, et al., 2008).

There is empirical evidence that the use of animals in therapeutic and educational environments can positively impact children with various problems, including those with behavioral and emotional problems (e.g., Kotrschal & Ortbauer, 2003). There also is

evidence that involvement in equine assisted activities programs results in positive effects such as improved self-esteem, social skills, and sense of mastery (Hallberg, 1998).

The purpose of this section is to briefly review empirical research on the animal-human bond, as well as the positive effects of animal-assisted interventions and children, with a more in-depth review of scholarly research investigating the effects of participation in equine assisted activities programs.

Animal Assisted Activities (AAA).

Since the mid-1900s the use of companion animals in therapeutic settings has been discussed in peer-reviewed psychological literature, with most studies describing the presence of a companion animal in the room during a therapy session (Klontz, Bivens, Leinart & Klontz, 2007). A thorough review of the body of literature on AAI is beyond the scope of this literature review; however, it is important to briefly note evidence of the positive effects of AAA on children.

As described above, numerous studies report positive effects of AAA with children with disabilities, including ED (e.g., Anderson & Olson, 2006; Esteves & Stokes, 2008; Jalongo, Astorino, & Bomboy, 2004; Jalongo, 2005; Mallon, 1994). Esteves and Stokes (2008) examined the effects of the presence of a dog on interactions between children aged 5 to 9 with developmental disabilities and their teachers. Results indicated increased overall positive verbal and non-verbal behaviors toward the teacher and the dog, overall decrease in negative behaviors, and improved social responsiveness. The authors concluded that the results supported "the position that children with developmental disabilities benefit from the use of skilled dogs as teaching assistants and therapeutic adjuncts" (Esteves & Stokes, 2006).

Anderson and Olson (2006) studied the effects of the presence of a dog in a self-contained special education classroom on children with emotional and behavioral disorders. Participants were aged 6 to 11 and the study design was qualitative. Results indicated that the dog's presence in the classroom "contributed to students' overall emotional stability evidenced by prevention and de-escalation of episodes of emotional crisis, improved students' attitudes toward school, and facilitated students' learning lessons in responsibility, respect, and empathy" (Anderson & Olson, 2006, p. 35).

In another study, Prothmann, Bienert, and Ettrich (2006) studied the effects of Animal Assisted Therapy (AAT) on children and adolescents in inpatient psychiatric treatment. Participants included 100 children and adolescents aged 11 to 20. AAT involved a therapy dog with 61 patients, and 39 patients were put into a comparison group. Pre-test/post-test comparisons revealed that the presence of the dog had a significant impact on the patients' state of mind. More specifically, the presence of the dog was associated with an increase in alertness and attention, more openness and greater social interaction, the perception of factors of health and vitality, and an increase in psychological wellness (Prothmann, et al., 2006).

Equine Assisted Activities (EAA).

Although companion animals are often used in therapeutic settings, horses are also often incorporated in therapeutic activities. As stated previously, the horse-human relationship has a long history and only recently have the mental health and education professions begun to recognize the therapeutic benefits of this relationship. Therapeutic riding programs across the country use horses to help children, adolescents, and adults with various emotional, behavioral, and physical problems. Anecdotal evidence from

books and websites indicates that therapeutic interventions involving horses have positive effects on the participants; however there is a need for greater and improved scholarly research on the psychosocial effects of EAA programs (Johansen, 2008; Smith-Osborne & Selby, 2010). To date, the body of literature on EAA is small and consists mostly of qualitative studies, and most of the quantitative studies contain methodological flaws and mixed results. For the purpose of the present study, literature that is reviewed focuses on the effectiveness of traditional EAA programs on psychosocial factors and not on literature focused on the effectiveness of hippotherapy on medical factors or Equine Assisted Psychotherapy.

Horse-human bond.

Before describing the current research on EAA, it is relevant to provide an example of the therapeutic effects of the horse-human bond. Using a qualitative methodology, Yorke, Adams, and Coady (2008) investigated how individuals' pre-existing relationships with horses helped them therapeutically recover from serious trauma. Participants in this study included six adults, (four women and two men) ranging from 18 to 51 years of age who had experienced significant trauma anywhere from 10 months to 11 years prior to participation. Trauma included horse-related accidents, car accidents, physical and emotional trauma including abuse, and the diagnosis of HIV. Many of the traumatic experiences resulted in serious injuries such as brain injury and paralysis. All participants had been riding horses since they were children, had been in recovery for at least eight months since experiencing trauma before returning to riding, and had been riding for at least two or three months prior to participating in this study. All but one participant rode at least three days per week and most rode for at least 30

minutes per ride (some rode multiple horses per day). Some participants kept their horses at home, some were mostly self-sufficient in caring for and riding horses, and others needed assistance to provide care such as grooming and help with mounting. All participants identified one horse as being particularly significant to them and their recovery from trauma (Yorke, et al., 2008).

Data was collected via two semi-structured audio-taped interviews that lasted approximately two hours (Yorke, et al., 2008). Interviews occurred in the barns where the participants' identified horses lived so as to provide observation in a natural setting. The first interview focused on the traumatic experiences and the participants' relationships with the horses and the second interview focused on the impact of the horse-human relationship on the participants' recovery from trauma. During both interviews interactions between the participants and the horses were videotaped. Results indicated two broad categories as well as subcategories under each as constructing the experience of the horse-human bond and recovery from trauma. The first main category was "the nature of the equine-human bond" and the subcategories were "the intimacy/nurturing bond, the identity bond, the partnership bond, and the utility bond" (Yorke, et al., 2008, p. 23). The second main category was "the therapeutic value of the equine-human bond" which included subcategories of "feelings, proximity/touch, and behaviors relevant to healing and recovery" (Yorke, et al., 2008, p. 23). The authors concluded that the relationships participants had with their horses contributed significantly to their healing from trauma and that there appeared to be parallels between the positive equine-human relationships and therapist-client relationships in relation to bonding and healing factors.

Although this study is limited by its small sample, it provides some evidence of how the horse-human relationship is not only therapeutic, in many ways it parallels the healing relationship between a psychotherapist and client. Future studies can build from this study in furthering our understanding of the therapeutic effects of the horse-human bond.

Effectiveness of Equine-Assisted Activities: Qualitative Studies.

To date, the majority of research investigating the effects of EAA on psychosocial development has been qualitative in design. Results of these studies have indicated participation in equine-facilitated activities has a positive impact in many areas, including self-esteem and self confidence, emotions, and social skills (Burgon, 2003; Hakanson, et al., 2009; Miller & Alston, 2004).

Burgon (2003) examined the psychotherapeutic effect of a therapeutic riding program on adult females receiving mental health social services in the United Kingdom. Participants were six Caucasian women, aged between 30 and 40 years who were diagnosed with depression, schizophrenia, or psychosis. They engaged in a therapeutic riding program on a weekly basis and the researcher collected data for a period of six months. Methodology involved case study and phenomenological approaches that included participant observations, questionnaires, and semi-structured interviews. Results were consistent with theory proposed by Hallberg (2008) and McDaniel (1998). The largest effect the participants experienced was an increase in confidence; the opportunity to master a new skill resulted in a transfer of this confidence into other social situations. Participants reported the horses themselves provided motivation to commit to a new experience, they perceived the horses as relating to humans in a non-judgmental

way, and they perceived the barn milieu to be non-judgmental and safe. Burgon (2003) concluded that a combination of factors including the "horse, teacher, group dynamics, and environment made the therapy a success" (p. 265). Although this study provided important information about the experience of the participants engaging in an equine-facilitated therapeutic riding program, there was only minimal description of data analysis procedures, and the sample size was small.

Similar to Burgon (2003). Bizub, Joy, and Davidson (2003) investigated the effects of an EAA program on five adults with long-standing histories of psychiatric illness with qualitative methodology. The EAA program consisted of three components: bonding activities with the horse, mounted activities, and a post-riding process group. Results indicated that, after 10 weeks of participation in the EAA program, participants reported success in learning basic horsemanship skills, as well as improved self-efficacy and self-esteem.

Another study investigating the effects of participation in EAA used a mixed methods study investigated the effect of an Equine Assisted Therapy (EAT) program on patients with chronic back pain (Hakanson, et al., 2009). Participants included 24 adults diagnosed with chronic back pain in Sweden and the authors described the methodology as "action research (which) takes place in an every) day setting providing knowledge of a nature differing from that obtained in an experimental design" (Hakanson, et al., p. 51). Qualitative data collection methods included field notes, recorded communication with participants, and video recordings. An objective measure was used to provide quantitative analysis of the impact of the EAT program. The average length of participation was 3.5 months and the main activity was individual or group therapeutic

horseback riding lessons which entailed preparation of the horse and mounting, introduction to body awareness, body awareness exercises, riding exercises with focus on body awareness, termination of the lesson which included relaxation and mindfulness exercises, and discussion of the day's experiences. Results of the objective VAS measure indicated that patients reported improvements in self-confidence, body control, and sleep, as well as some pain relief; however, due to drop-out rates there were not enough participants to provide credible statistical analysis of this instrument. The qualitative results were also consistent with the theory proposed by Hallberg (2008) and McDaniels (1998). Results indicated four dimensions as central to EAT: Body Awareness, Competence, Emotion, and Environment. The Body Awareness dimension was described as function, such as improved body control; reduced tension and better posture; and self-image, such as improved body image. This dimension included improvements reported in concentration and mental presence. The dimension of Competence was described as "increased skill in execution and an altered active repertoire" and included increased skillfulness in the areas of communication, taking care of oneself, competence in handling and riding the horse, and pain management (Hakanson, et al., 2009, p. 48). The dimension of Emotion was described as "feelings of joy and an altered level of awareness" and included feelings of satisfaction, happiness, pride, and relaxation (Hakanson, et al., 2009, p. 49). Lastly, the dimension of environment was characterized by leisure time being spent in nature and a new environment which was experienced through the senses and involved a role change that required participation in a healthy activity with a social connection to others. In other words, the participants' roles changed from one of being a patient to one participating in a leisure activity (Hakanson, et al.,

2009). Results of this study supported the results of the Burgon (2003) study in that both studies found improvements related to self-image and competence in adults.

Another example of a qualitative study finding positive effects of participation in an equine assisted activities program focused on the benefits of children with disabilities. This study examined "the perceived benefits that therapeutic riding has on children with disabilities through the eyes of their parents" (Miller & Alston, 2004, p. 114). Participants were 10 parents (of five children enrolled in a therapeutic riding center program), aged 30 to 45 years. Methodology was a qualitative interpretive case study format which included semi-structured interviews, focus group, and reviews of the children's reports (therapeutic and educational). Results were grouped into three main findings. The first finding was that prior to participation in the present study, parents had not been aware of the existence of therapeutic riding programs. Second, parents reported significant improvements in their children's "social and academic development, particularly with the development of personal responsibility" (Miller & Alston, 2004, p. 120). More specifically, parents reported an increase in their children in areas such as self-esteem, the ability to follow directions, and socialization skills. Finally, parents reported that they would like to see therapeutic riding programs be incorporated into the public school curriculum, though they were aware that the high cost of such programs could be prohibitive (Miller & Alston, 2004). Again, the results of this study are consistent with those of Burgon (2003) and Hakanson, et al., (2009) in that all three studies demonstrated positive gains in the area of self-esteem. Limitations of this study were similar to those of the Burgon (2003) study in that the sample size was small and the data analysis description was somewhat weak; however, this study contributes to the

literature by providing evidence of positive effects of participation in therapeutic riding programs in children.

Effectiveness of Equine-Assisted Activities: Quantitative Studies.

As described previously, the majority of research evaluating the effectiveness of equine-facilitated activities has been qualitative in nature. Results of these studies indicate positive effects such as increases in self-esteem, confidence, positive emotions, self-control, and social interactions, as well as reductions in symptoms of depression and anxiety (Burgon, 2003; Hakanson, 2009; Johansen, 2008; Miller & Alston, 2004). Although many researchers and therapeutic riding professionals have espoused the important need for quantitative research in this area, few studies have been conducted, results are mixed, and in many cases study design flaws exist (Johansen, 2008; Kaiser, et al., 2004; Klontz, et al., 2007).

One such quantitative study evaluated the effects of an equine-assisted therapeutic educational program on youths identified as having severe emotional disorders (SED) (Ewing, MacDonald, Taylor, & Bowers, 2007). Participants included 28 students aged 10 to 13 years who were identified as having moderate to severe behavioral or conduct disorders and/or learning disabilities. Participants engaged in a nine-week equine-facilitated learning program named Horse Power which was described as "an education enhancer as well as a therapeutic intervention" that aimed to "teach skills such as cooperation, trust, and responsibility with the goal of transferring these learned skills into their own lives and everyday interactions" (Ewing, et al., 2007, p. 65). Each participant was paired with a particular horse and this relationship lasted throughout the nine weeks. Pre- and post-test evaluations of effectiveness were conducted on various measures of

self-perception, empathy, locus of control, depression, and loneliness. Results did not indicate a statistically significant improvement in scores between pre- and post-tests on these measures. Although the authors proposed various reasons for these results (such as participants feeling sad that the program was ending which may have resulted in higher scores on the depression measure), there were significant design flaws in this study. For example, the sample was quite heterogeneous across variables such as IQ and psychological diagnoses. Also, there was no control group to compare to the experimental group. Additionally, the authors included four case study examples at the end of their paper which described behavioral and emotional improvements in four children who participated in the study. Although these examples represent positive anecdotal evidence of the effectiveness of the equine-facilitated therapeutic intervention, their inclusion does not meet a rigorous definition of qualitative research, in that the methodology (including data collection and data analysis) were not explained in the paper. It appeared that these case studies were simply added to the existing non-significant quantitative results, rather than incorporated as part of the methodology from the beginning of the study. This study is important, however, in its contribution to the sparse existing literature on quantitative studies of the effectiveness of equine-facilitated therapeutic programs.

Another quantitative study of EAA involved a pilot study to evaluate the effect of a "five-day therapeutic riding day camp on children's anger, quality of life, and perceived self-competence" (Kaiser, et al., 2004, p. 65). The authors of this study aimed to improve the methodological design as compared to previous studies. Participants included 16 able-bodied children aged 7 to 17 years (12 girls and 4 boys) who participated in a five-

day therapeutic riding summer day camp. Pre- and post-test measures of anger (including sub-scales of frustration, physical aggression, peer relationships, and authority relations), quality of life (including sub-scales of physical functioning, emotional functioning, social functioning, and school functioning), and self-perception (including subscales of global self worth, social acceptance, athletic competence, physical appearance, behavioral conduct, and social competence) were administered prior to starting the program on day one and after completing day five. Results indicated that, although this sample collectively had anger scores within the normal range at pre-test, the total score on the anger measure decreased significantly by the end of day five. Additionally, scores of physical aggression, peer relationships, and authority relations also decreased significantly between pre- and post-tests. No significant differences were found on measures of quality of life and self-perception, though the authors reported a non-significant trend toward improved scores on global self worth and emotional, social, and school functioning sub-scales. The authors concluded that these results "suggest that five days of therapeutic riding camp can significantly reduce anger in able-bodied children" (Kaiser, et al., 2004, p. 68). Compared to the Ewing, et al. (2007) study, this study demonstrated improved methodological design and results were significant, indicating positive effects of participation in a therapeutic riding program for children. This study would have been stronger, however, if there had been a comparison control group of similar children who did not participate in the therapeutic riding program. Also, the sample size was small, and the authors did suggest that if the participants had participated in the program for a longer period of time, perhaps there may have been significant changes in scores on the other measures (Kaiser, et al., 2004). This study does provide a

good pilot study, however, with significant results and therefore contributes to the small but growing body of scholarly research on EAA and provides implications for future research.

Yet another quantitative study investigating the effectiveness of EAA involved 31 adults from a 4 ½-day residential program who participated in 28 total hours of Equine-Assisted Experiential Therapy (EAET) sessions in a group therapy format (Klontz, et al., 2007). The authors described EAET as a treatment intervention that "combines experiential therapy with specific equine activities to give clients the opportunity to work through unfinished business, relieve psychological distress, live more fully in the present, and change destructive patterns of behavior. (Klontz, et al., 2007, p. 258). Equine activities similar to other therapeutic riding programs, such as grooming, mounting, and riding were combined with traditional therapy techniques including role-playing, sculpting, role-reversal, mirroring, and Gestalt techniques (Klontz, et al., 2007). Pre-, post- and follow-up tests were obtained on measures including the Brief Symptom Inventory (BSI; Derogatis, 1993) and the Personal Orientation Inventory (POI; Shostrom, 1974). Results indicated significant and stable reductions in overall psychological symptoms and improvements in psychological well being from pre-test to posttest and follow-up. (Klontz, et al., 2007, p. 263). More specifically, results indicated that participants reported being "more oriented to the present, better able to live more fully in the here-and-now, less burdened by regrets, guilt, and resentments, less focused on fears related to the future, more independent, and more self-supportive" (Klontz, et al., 2007, p. 263). This study is different from those already described in that it included group psychotherapy interventions in addition to EAA. There are limitations to this study; it

would have been stronger if it had included random selection and random assignment to groups and included control groups, such as a group who did not participate in any intervention, a group who participated in only group psychotherapy, and perhaps a group who participated in only EAA.

Bass, Duchowny, and Llabre (2009) conducted a quantitative study investigating the effect of a therapeutic horseback riding program on social functioning of children diagnosed with autism. Participants included 34 children diagnosed with Autism Spectrum Disorder who were randomly assigned to either an experimental or control group. Participants in the experimental group engaged in a 12-week therapeutic riding program consisting of one 1-hour session per week and the control group consisted of a wait list. Pre- and post-test measurements included the Social Responsiveness Scale (SRS; Constantino, 2002) and the Sensory Profile (SP; Dunn, 1990). Results indicated statistically significant group x time interactions for both the SP and the SRS, and follow-up analyses revealed that scores on the SP and the SRS significantly increased in the experimental group. Specifically, compared to the control group, children in the experimental group improved in important areas such as sensory integration and directed attention. Participants in the experimental group also demonstrated improved social motivation and sensory sensitivity, and decreased inattention and distractibility. The authors concluded that horseback riding may be an effective therapeutic intervention for children with autism spectrum disorders (Bass, et al., 2009).

This study demonstrated improved methodology; it included a good sample size and a control group, and statistical analyses were appropriate and explained. This study probably contributes the most to the growing literature on EAA and should provide a

good example for future studies to follow. Aspects of this study's methodology were incorporated into the design of the present study (e.g., inclusion of a control group and statistical analyses).

Another study that had improved methodology was a pilot study investigating the effects of an EAA program on children and adolescents with Autism Spectrum Disorders (ASDs; Gabriels, Agnew, Hold, Shoffner, Zhaoxing, Ruzzano, Clayton, & Mesibov 2012). Participants included 42 children and adolescents aged 6-16 diagnosed with ASDs who participated in a 10-week EAA program and a comparison group of 16 who were on a waitlist (who later participated in the EAA program as part of the experimental group). Results indicated participants in the experimental group demonstrated significant improvements in measures of Irritability, Lethargy, Stereotypic Behavior, Hyperactivity, expressive language skills, motor skills, and verbal praxis/motor planning skills at post-test; however, when compared to the waitlist control group, the experimental group demonstrated significant improvements only in Irritability, Lethargy, Stereotypic Behavior, and Hyperactivity. One particular limitation of this study is the uneven sizes of groups (42 vs. 16).

CHAPTER 3

METHOD

Research Design

The present study compared youth self-report, parent rating, and teacher rating scores using the Behavior Assessment Scale for Children – Second Edition (BASC-2; Reynolds & Kamphaus, 2004) at pre-test, post-test, and follow-up between an experimental group and a control group which continued with "treatment as usual." The design of the study was quasi-experimental, in which groups of participants were not randomly assigned. Academic data related to quarterly attendance, grades, and point percentages (% of positive behavior exhibited at school) was also collected. This chapter describes the methods used for sampling, the EAA intervention, instruments/measures, and procedures for data collection and preparation for analysis.

Research Questions

The research questions are exploratory and presented below:

1. What are the effects of the EAA program on behavioral and emotional functioning?
2. What are the effects of the EAA program on school functioning?

3. What are the effects the EAA program on adaptive skills and personal adjustment?
4. What is the effect of the EAA program on school attendance?
5. What is the effect of the EAA program on grades?
6. What is the effect on the EAA program on behavioral point percentage?
7. Are any gains demonstrated at post-test maintained at a three-month follow-up assessment on all measures?

Participants

Participants were recruited from a specialized alternative education day school program based in the Greater Cleveland, Ohio area that provides educational and therapeutic services to at-risk students with emotional and behavioral problems who were unsuccessful in their regular education school settings. The school was founded in 1999. It is a non-profit 501(c)(3) agency, and its mission is to serve youth with behavioral and emotional problems in a therapeutic setting with individualized academic instruction.

The school program serves over 400 students each year from school districts in six counties at day treatment facilities in five suburbs in Northeast Ohio. Participants were recruited from two day treatment program campuses (Labeled "School A" and "School B") due to their close proximity to the EAA program facility. Twenty-six students (51%) in the sample attended School A and 25 (49%) attended School B.

Along with their individualized education program, students may also receive group and individual therapy, crisis counseling, social skills training, and anger management training from licensed counselors, as well as skill-building in the areas of self advocacy, workplace readiness, and daily living skills provided by trained

professionals. Students from School A and School B have participated in EAA programming at Fieldstone Farm Therapeutic Riding Center (FFTRC) in the past and therefore staff and teachers were familiar with the program.

To be eligible for participation in the study, participants must attend either School A or School B; they must be between the ages of 8 and 15; they must be identified as Emotionally Disturbed; and they must not be in the foster care system. To be eligible for the EAA program, participants must weigh less than 180 pounds.

The sample was comprised of 51 students (45 male, 6 female) receiving special education services at a separate special education facility due to identification as Emotionally Disturbed (ED). Participants were aged 9 to 15 with a mean age of 12.6 (*SD* = 1.3). Grades ranged from 4th to 10th grade with a mean grade of 6.9 (*SD* = 1.5). Ethnic distribution was 69% African American (*n* = 35), 16% Caucasian (*n* = 8), 8% Biracial/Multiracial (*n* = 4), 6% Latino (*n* = 3), and 1% not reported (*n* = 1). Approximately 82% of the sample (*n* = 42) qualified for free lunch. Students are eligible for free lunch if they are a member of a household that receives benefits from Assistance Programs such as Supplemental Nutrition Assistance Program (SNAP), Temporary Assistance for Needy Families (TANF), or Food Distribution Program on Indian Reservations (FDPIR), or if students have been identified as being homeless, runaway, or migrant, or are in foster care or Head Start programs (U.S. Department of Agriculture, 2011). Caretakers were identified as the students' legal guardian and primary caretaker. Fifty-seven percent of students' caretakers were mothers only (*n* = 29), 20% had two parents (*n* = 10), 14% had a grandparent (*n* = 7), 6% had a guardian (e.g., aunt or other family member) (*n* = 3), and 2% were not reported (*n* = 1). Geographically,

approximately 47% of students reside in an urban community (City of Cleveland; *n* = 24), 36% live in an inner-ring suburb (Bedford, Cleveland Heights/University Heights, East Cleveland, Euclid, Maple Heights, South Euclid, and Parma; *n* = 17), and 18% live in an east-side suburb of Cleveland (Geneva, Willoughby, Twinsburg, and Orange; *n* = 10).

Clinically, approximately 31% of students were diagnosed with a behavior disorder (e.g. Attention-Deficit/Hyperactivity Disorder, Oppositional Defiant Disorder, Conduct Disorder; *n* = 16), 14% with a mood disorder (e.g. Bipolar Disorder, Major Depressive Disorder; *n* = 7), 8% with an anxiety disorder (e.g., Posttraumatic Stress Disorder, Anxiety Disorder Not Otherwise Specified; *n* = 4), 4% with a Pervasive Developmental Disorder (e.g., Asperger's Disorder, Pervasive Developmental Disorder Not Otherwise Specified; *n* = 2), 2% with Gender Identity Disorder (*n* = 1), 31% with two or more categories of disorders (*n* = 16), and 10% had either no diagnosis or diagnosis was not reported (*n* = 4). Of the sample, 55% were prescribed psychotropic medication (*n* = 28), 37% were not prescribed psychotropic medication (n = 19), and 8% did not report medication status (*n* = 4). IQ scores were reported for approximately 53% of the sample. Of that 53%, IQ scores ranged from 62 to 105 with a mean of 82.6 (*SD* = 11.3). Four percent of the sample was identified with a learning disability (*n* = 2) and 12% with a cognitive disability (*n* = 3). Approximately 69% of the sample received individual counseling within the school (*n* = 35), and 30% received counseling outside of the school (*n* = 15). Approximately 26% of the sample participated in an EAA program prior to the present study (*n* = 13). Of the entire sample, 76% (*n* = 39) received counseling either at school or through an outside agency, 12% (*n* = 6) received

counseling both at school and through an outside agency, and 12% (n = 6) did not receive counseling through the school or through an outside agency.

Sampling Procedures

Participant recruitment and assignment.

Recruitment occurred in two phases. Phase I began in January 2011; the EAA session was scheduled to begin March 23, 2011 and end June 7, 2011, and there were 20 slots available for participants in the experimental group. Phase II participant recruitment began in August 2011; the EAA session was scheduled to begin October 11, 2011 and end December 13, 2011, and there were 10 slots for participants in the experimental group.

For both phases, School A and School B Directors of Treatment (who have already-established work relationships with students and their parents) approached eligible students and their parents about participation in the study. Directors were trained by the Primary Investigator (PI) on study design and procedures so they could provide general information and answer questions. Written materials including a description of the study, the parent informed consent form, contact information for the PI, and an Education Alternatives Authorization for Release of Information form were sent home to parents. After signed paperwork was returned by parents, students were explained the study and asked to sign the assent for participation form (see Appendix A-C).

For Phase I, only two to three participants returned completed medical forms that included a physical signed by a physician. It was decided to assign these participants to the experimental group, as there were 20 EAA slots to fill and parents were not returning paperwork in a timely fashion. Parents of participants in the experimental condition who

did not have a current physical were offered the opportunity for a physical to be completed free of charge by a physician who volunteered his services at the School B location; these parents were asked to sign a consent form for the physical. In Phase II, parents of participants in the experimental condition who did not have a current physical were offered the opportunity for their child to have a sports physical completed at a CVS Minute Clinic at the cost of the PI; these parents were asked to sign a consent form for the physical, as well as consent forms required by CVS Minute Clinic.

During Phase I, two participants returned signed paperwork but were not included in the study because they were wards of the state. Of the 51 participants who began the study (Phase I and Phase II), 2 dropped out after post-test; one due to moving out of state and one was removed from the school and transferred to a residential treatment program.

Across both sessions (i.e., phases), about ten students were too heavy to participate in the EAA program; all of them were willing, however, to participate in the study as a control group participant, and were therefore assigned to the control group. In addition, eight to ten students were unwilling to participate (the reasons were not reported) but were willing to be assigned to the control group; therefore, these participants were placed in the control group. After the first EAA session, which does not include riding, one participant assigned to the experimental condition in each phase decided they did not want to continue in the program, though they were willing to continue participation in the study. Both participants were therefore switched to the control group and one participant who began in the control group in Phase I was then switched to the experimental group.

Two participants who had been in the control group during Phase I were placed in the experimental group for Phase II. After the first EAA session, one participant from School B switched to School A. It was not communicated to School A that she was participating in the EAA program and it was not communicated to the PI that she had switched schools until the end of Session 2. This participant was switched to the control group and post-test data was collected. The final total sample, aggregated across both phases (sessions), included 27 participants in the experimental group and 24 in the control group. Both groups continued all services provided by Education Alternatives throughout the course of the study, as well as any outside services they regularly received.

Informed consent and confidentiality.

Informed assent from student participants and informed consent from their parents, who were assured they had the right to withdraw participation at any time, were obtained. Parents also signed school Authorization for Release of Information forms, allowing school staff to discuss their children with the PI and provide information such as grades, attendance, point percentages, and demographic information. Parents were also asked to complete FFTRC registration and release of information and medical history/physician release forms (see Appendix D-E). Participants in the experimental condition were required by FFTRC to have a current sports physical and physician release form signed by a physician or Registered Nurse.

Participants were assigned identification numbers in order to keep data analyses and results confidential. Identification numbers were used to identify participants in the BASC-2 computer scoring program and in the SPSS data analysis program. Names were

included on hand-written BASC forms, demographic information forms, school attendance, grades, and point percentage forms, all consent forms, and FFTRC forms due to the nature of the information (e.g., to keep track of BASC forms as they were returned by parents, teachers, and students, this information is automatically provided on all school records). Information with names are kept in a locked location separate from data with identification numbers. All data forms are maintained in a locked setting on the campus of Cleveland State University.

Teachers who completed BASC TRS forms were asked to sign a teacher consent form (see Appendix I).

Power analysis

Based on Cohen's (1992) power primer and statistical power analyses using G*Power 3.1 (Faul, Erdfelder, Lang, & Buchner, 2007), a sample size of approximately 68 is sufficient for detecting a medium effect size between the experimental and control group (Power = .80, $\alpha = 05$). The estimated sample size for the study ($N \approx 60$) would allow for adequate power to test the hypotheses and be reasonably confident about statistical conclusion validity. Although the anticipated sample size was 60, the actual sample size was only 51. This lower sample size was due to not enough parents returning forms, some students not wanting to participate, two students who were wards of the state, and one student who left the school after the study began.

Experimental Intervention

Intervention: Equine Assisted Activities (EAA) Program

The experimental condition included participation in ten sessions of an already-established EAA program at Fieldstone Farm Therapeutic Riding Center (FFTRC) in Chagrin Falls, Ohio. FFTRC is a nonprofit organization that has been providing EAA

programs for people with disabilities since 1978. FFTRC is a Premier Accredited Center with NARHA and instructors are NARHA certified (Fieldstone Farm Therapeutic Riding Center, 2008). FFTRC provides EAA programs for people with cognitive, physical, emotional, and social disabilities and serves individuals with diverse abilities. The greatest percentage of people served has Autism Spectrum Disorders, Attention-Deficit/Hyperactivity Disorders, and/or sensory impairments (37%); however, the next largest group of disabilities served by FFTRC is behavioral, emotional, and psychosocial disorders (22%) (FFTRC, 2008). FFTRC has approximately 36 staff members (18.4 Full Time Equivalent), 22 NARHA certified instructors, 36 therapeutic horses, and engages approximately 250 trained volunteers per week.

Two EAA sessions occurred; the first was March through June 2011 and the second was October through December 2011. Both sessions occurred on a weekly basis. Session 1 consisted of four groups of approximately 5 participants and Session 2 consisted of two groups of approximately 5 participants. Due to academic scheduling issues, Session 1 was 10 sessions across 11 weeks (one week off for spring break) and Session 2 was 10 sessions in 9 weeks (one week had two sessions to make up for the missed session during to Thanksgiving break).

Transportation to and from the therapeutic riding center were provided by school staff. Two to three school staff members accompanied each group of 5-10 participants. For Session 1 20 participants were divided into four groups of five participants and for Session 2 participants were divided into 2 groups of 10 participants. Groups were assigned to FFTRC teams comprised of one instructor per group and at least one volunteer per rider. These teams remained the same throughout the 10-session program,

except when a change in instructor or volunteer was necessary due to unforeseen circumstances. Participants were matched with the same horses at each session, unless there was a beneficial/therapeutic reason for changing horse and rider combinations. Safety was ensured through standard procedures such as appropriate safety head gear, appropriate clothing, supervision at all times, and compliance with rules and expectations.

Half of each session focused on horsemanship, or "ground work" and half of the session was spent riding. The riding portion of the session lasted approximately one hour and included preparation time such as putting on the helmet, preparing the horse, and mounting; warm-up and skill review; skill development and guided practice; activity or game supporting lesson objective; and wrap-up and dismount. The progress of weekly lessons included topics such as building an awareness of horses and safety; basic skills of halt, walk, and left and right rein use; postural symmetry and balance; strength-building; two-point (standing in stirrups and leaning forward over the horse's neck while maintaining balance); and half-halt (slowing down the horse but maintaining gait). Each subsequent lesson built upon the skills learned in the previous lessons as each participant progressed. The groundwork portion of the session lasted approximately one hour and included activities that included teacher horsemanship skills such as grooming horses, cleaning stalls, and sweeping aisles with knowledge of horses such as their non-verbal behaviors, herding behaviors, parts of the horse, and care of the horse. For example, one ground lesson required participants to work together to create treats for the horses, which they then used to show their gratitude for the horses' work and participation that day. Another ground lesson involved a game that tested the participants' knowledge learned

about horses such as what it means when a horse puts his ears forward vs. backward, what horses eat, and safety rules around horses. Groundwork riding activities engaged participants in the utilization of skills such as compliance with rules, following directions/directives, verbal and nonverbal communication, active listening, respect toward horses, instructors, volunteers, self, and each other, and care for horses, among other skills, while mastering the new skill of horseback riding. In order to track fidelity to the program, instructors completed progress notes after each session.

Instruments

Behavior Assessment System for Children, Second Edition (BASC-2).

The Behavior Assessment System for Children, Second Edition (BASC-2) is a "multimethod, multidimensional system used to evaluate the behavior and self-perceptions of children and young adults aged 2 through 25 years" (Reynolds & Kamphaus, 2004, p. 1). It is considered to be "multimethod" because it has five components that may be used individually or in combination. The Teacher Rating Scale (TRS) and Parent Rating Scale (PRS) assess the child's observable behavior, and each is divided into age-appropriate forms (Preschool: 2-5, Child: 6-11, and Adolescent: 12-21). The Self-Report of Personality (SRP) assesses the child or adolescent's description of his or her own emotions and self-perceptions and is also divided into age-appropriate forms (Child: 8-11, Adolescent: 12-21, and College: 18-25). The BASC-2 also includes a Structured Developmental History (SDH) form and a Student Observation System (SOS); however, these forms will not be used in the present study (Reynolds & Kamphaus, 2004).

Teacher Rating Scale - Child (TRS-C) and Teacher Rating Scale – Adolescent (TRS-A).

The TRS is "a comprehensive measure of both adaptive and problem behaviors in the school setting. It is designed for use by teachers or others who fill a similar role" (Reynolds & Kamphaus, 2004, p. 3). Respondents rate descriptors of behaviors on a four-point scale of frequency, ranging from 'Never' to 'Almost Always'. For teachers with experience completing rating forms, the TRS takes approximately 10-15 minutes to complete (Reynolds & Kamphaus, 2004). The TRS-C assesses children aged 6 to 11 and the TRS-A assesses adolescents aged 12-18 on broad domains/composites, primary scales, and optional content scales (Reynolds & Kamphaus, 2004). Composite scales summarize performance and allow for broad conclusions about different types of adaptive and maladaptive behavior. TRS composites are: Externalizing Problems, Internalizing Problems, School Problems, Behavioral Symptoms Index, and Adaptive Skills (Reynolds & Kamphaus, 2004). Composite scores are converted to T scores with a mean of 50 and standard deviation of 10. Clinical scale scores that are 70 and above fall into the Clinically Significant range and scores between 60 and 69 fall within the At-Risk range ("at risk" of developing clinically significant problems). For adaptive scales, scores of 30 and below fall into the Clinically Significant range and scores between 31 and 40 fall within the At Risk range. The composite scales and primary scales are summarized in Table 1.

Table 1

TRS-C and TRS-A Composite Scales and Associated Primary Scales

Composite Scale	Primary Scales
Externalizing Problems	Hyperactivity
	Aggression
	Conduct Problems
Internalizing Problems	Anxiety
	Depression
	Somatization
School Problems	Learning Problems
	Attention Problems
Behavioral Symptoms Index (BSI)	Hyperactivity
	Aggression
	Depression
	Attention Problems
	Atypicality
	Withdrawal
Adaptive Skills	Adaptability
	Social Skills
	Leadership
	Study Skills
	Functional Communication

Coefficient alpha reliabilities of composites for the TRS for general norm and clinical samples range from .90 to .97, indicating high reliability (Reynolds & Kamphaus, 2004). Reliabilities of primary scales on the TRS for general norm and clinical samples range from .81 to .95, also indicating good reliability. Test-retest reliability adjusted correlations for composite scales ranged from .89 to .94 and correlations for primary scales ranged from .74 to .90. Interrater reliability adjusted correlations for composite scales ranged from .52 to .64 and adjusted correlations for primary scales ranged from .23 to .67 (Reynolds & Kamphaus, 2004).

Correlations within clinical scales and adaptive scales are positive, and correlations between clinical and adaptive scales are negative (Reynolds & Kamphaus, 2004). The TRS was compared to the Achenbach System of Empirically Based Assessment (ASEBA) Teacher's Report Form for Ages 6-18 (Achenbach & Rescorla, 2001) and the Conners' Teacher Rating Scale – Revised (CTRS-R; Conners, 1997). Results indicated moderate to high correlations on most scales (Reynolds & Kamphaus, 2004).

Parent Rating Scale - Child (PRS-C) and Parent Rating Scale – Adolescent (PRS-A).

The PRS is "a comprehensive measure of a child's adaptive and problem behaviors in community and home settings" (Reynolds & Kamphaus, 2004, p. 4). Similar to the TRS, the PRS uses a four-choice response format and takes 10 to 20 minutes to complete. The TRS-C assesses children aged 8-11 and the TRS-A assesses adolescents aged 12-18. It is written at approximately a fourth-grade reading level and is available in both English and Spanish. The PRS assesses the same composites as the

TRS except for School Problems. The PRS assesses the following Primary Scales: Adaptability, Activities of Daily Living, Aggression, Anxiety, Attention Problems, Atypicality, Conduct Problems, Depression, Functional Communication, Hyperactivity, Leadership, Social Skills, Somatization, and Withdrawal and the following optional content scales: Anger Control, Bullying, Developmental Social Disorders, Emotional Self-Control, Executive Functioning, Negative Emotionality, and Resiliency (Reynolds & Kamphaus, 2004). For the present study, the composite scores on the PRS were used for data analysis. Composite scores are converted to T scores with a mean of 50 and standard deviation of 10. Clinical scale scores that are 70 and above fall into the Clinically Significant range and scores between 60 and 69 fall within the At-Risk range ("at risk" of developing clinically significant problems). For adaptive scales, scores of 30 and below fall into the Clinically Significant range and scores between 31 and 40 fall within the At Risk range. The composite scales and primary scales are summarized in Table 1.

The composite scales and primary scales are summarized in Table 2.

Table 2

PRS-C and PRS-A Composite Scales and Associated Primary Scales

Composite Scale	Primary Scales
Externalizing Problems	Hyperactivity
	Aggression
	Conduct Problems
Internalizing Problems	Anxiety
	Depression
	Somatization
Behavioral Symptoms Index (BSI)	Hyperactivity
	Aggression
	Depression
	Attention Problems
	Atypicality
	Withdrawal
Adaptive Skills	Adaptability
	Social Skills
	Leadership
	Activities of Daily Living
	Functional Communication

Similar to the TRS, reliability of the PRS was measured for internal consistency, test-retest reliability, and interrater reliability (Reynolds & Kamphaus, 2004). Coefficient alpha reliabilities of composites for the TRS for general norm and clinical samples range from .89 to .96, indicating high reliability (Reynolds & Kamphaus, 2004). Reliabilities of primary scales on the TRS for general norm and clinical samples range from .73 to .92, also indicating good reliability (Reynolds & Kamphaus, 2004). Overall, composite and scale scores were found to be effective measures of the behavioral dimensions due to internal consistency reliabilities across gender and clinical/nonclinical groups. Test-retest reliability adjusted correlations for composite scales ranged from .78 to .92 and correlations for primary scales ranged from .65 to .86. Interrater reliability adjusted correlations for composite scales ranged from .68 to .77 and adjusted correlations for primary scales ranged from .58 to .86 (Reynolds &Kamphaus, 2004).

Correlations within clinical scales and adaptive scales were positive and correlations between clinical and adaptive scales are negative (Reynolds & Kamphaus, 2004). A comparison of the PRS and the Achenbach System of Empirically Based Assessment (ASEBA) Child Behavior Checklist for Ages 6-18 (Achenbach & Rescorla, 2001) and the PRS and the Conners' Parent Rating Scale – Revised (CPRS-R; Conners, 1997) indicated moderate to high correlations between composites and scales that measure the same constructs (Reynolds & Kamphaus, 2004).

Self Report of Personality - Child (SRP-C) and Self-Report of Personality – Adolescent

(SRP-A).

The SRP is a self-report personality inventory consisting of statements that respondents answer in one of two ways. The first half of the record form requires 'True' or 'False' responses and the second half requires four-point ratings of frequency ranging from 'Never' to 'Almost Always'. The SRP is available in both English and Spanish, it is written at approximately a third grade reading level, and it takes approximately 20 to 30 minutes to complete (Reynolds & Kamphaus, 2004).

The SRP-C is designed for children aged 8 to 11 and assesses the following composite scales comprised of primary scales: School Problems (Attitude to School, Attitude to Teachers), Internalizing Problems (Atypicality, Locus of Control, Social Stress, Anxiety, Depression, Sense of Inadequacy), Inattention/Hyperactivity (Attention Problems, Hyperactivity), Emotional Symptoms Index (Social Stress, Anxiety, Depression, Sense of Inadequacy, Self-Esteem, and Self-Reliance), and Personal Adjustment (Relations with Parents, Interpersonal Relations, Self-Esteem, and Self-Reliance). The SRP-A is designed for adolescents aged 12-18 and assesses the same composite scales, with additional primary scales (Sensation Seeking and Somatization). Similar to the BSI on the TRS and PRS, the ESI "includes the scales that load highest on a general factor" (Reynolds & Kamphaus, 2004, p. 4). Similar to the TRS and PRS, composite scores on the SRP are helpful for summarizing responses and making broad conclusions. The SRP also includes optional content scales: Anger Control, Ego Strength, Mania, and Test Anxiety (Reynolds & Kamphaus, 2004). For the present study, the composite scores on the SRP were used for data analysis. Composite scores are converted to T scores with a mean of 50 and standard deviation of 10. Clinical scale scores that are 70 and above fall into the Clinically Significant range and scores between

60 and 69 fall within the At-Risk range ("at risk" of developing clinically significant problems). For adaptive scales, scores of 30 and below fall into the Clinically Significant range and scores between 31 and 40 fall within the At Risk range. The composite scales and primary scales are summarized in Table 3.

The composite scales and primary scales are summarized in Table 3.

Table 3

SRP-C and SRP-A Composite Scales and Associated Primary Scales

Composite Scale	Primary Scales
School Problems	Attitude to School
	Attitude to Teachers
	Sensation Seeking (SRP-A only)
Internalizing Problems	Atypicality
	Locus of Control
	Social Stress
	Anxiety
	Depression
	Sense of Inadequacy
	Somatization (SRP-A only)
Inattention/Hyperactivity	Inattention
	Hyperactivity
Emotional Symptoms Index (ESI)	Social Stress
	Anxiety
	Depression

	Sense of Inadequacy
	Self-Esteem (inverted score)
	Self-Reliance (inverted score)
Personal Adjustment	Relations with Parents
	Interpersonal Relations
	Self-Esteem
	Self-Reliance

Similar to the TRS and PRS, reliability of the PRS was measured for internal consistency and interrater reliability (Reynolds & Kamphaus, 2004). Coefficient alpha reliabilities of composites for the SRP for general norm and clinical samples range from .81 to .96, indicating high reliability. Reliabilities of primary scales on the SRP for general norm and clinical samples range from .67 to .86, (median values are near .80) also indicating good reliability. Overall, internal-consistency reliabilities of the BASC-2 SRP composites and scales are high and are consistent across gender, age, and clinical/nonclinical groups. Test-retest reliability adjusted correlations for composite scales ranged from .75 to .83 and correlations for primary scales ranged from .63 to .82 (Reynolds & Kamphaus, 2004).

Correlations "within clinical scales and adaptive scales are positive, whereas correlations between clinical and adaptive scales are negative…and in general, scales are moderately correlated with one another" (Reynolds & Kamphaus, 2004, p. 202). Regarding construct validity, all factors had scales with moderate to high loadings.

Several studies compared scores by the same child on different behavioral and emotional rating scales. For example, a comparison of the SRP with the Achenbach System of Empirically Based Assessment (ASEBA) Youth Self-Report Form (Achenbach & Rescorla, 2001) and the Conners-Wells Adolescent Self-Report Scale (CASS; Conners, 1997) indicated moderate to high correlations between composites and scales that measure the same constructs (Reynolds & Kamphaus, 2004).

Validity scales.

Validity scales for the BASC-2 help judge the quality of a completed form. Various issues may threaten validity such as "failure to pay attention to item content, carelessness, an attempt to portray self or youth in a positive or negative light, lack of motivation to respond truthfully, or poor comprehension of the items" (Reynolds & Kamphaus, 2004, p. 16). The SRP, TRS, and PRS have an F Index which measures a respondent's tendency to be excessively negative in rating oneself or a youth and may indicate an unrealistic number of problems. It is recommended that if the F score is in the Caution or Extreme Caution range, the examiner should consider the possibility that a negative response style may have skewed the TRS/PRS results. The SRP also has an L Index which indicates a youth's tendency to respond in a way that presents him- or herself in an excessively positive light, and a V Index which indicates the respondent endorsed a number of highly implausible statements; the V Index is a basic measurement of overall validity of the SRP. The TRS and PRS also include a Response Pattern Index which measures any unusual response patterns such as the identical response to many items in succession or an alternating cyclical pattern, and a Consistency Index which

measures if the respondent gave differing responses to items that are usually answered similarly (Reynolds & Kamphaus, 2004).

Academic records.

After obtaining consent from legal guardians and a signed Authorization for Release of Information, academic records including grades, school attendance, and point percentages were obtained. Academic achievement was assessed using quarterly grade point averages (GPAs) which were based on a 4.0 scale. School attendance was measured by the number of school days missed during the quarter. The school program has a daily point system that involves tracking behaviors related to self-care, positive interactions with others, and becoming productive members of their communities. On a daily basis, students are rated either a "0" or a "1" by their teachers in each of 30 target behavioral areas: self category: self-care, dress code, safe behavior, assignment completion, assignment accuracy, positive use of time, homework/passport turned in, honest/dependable behavior, accept responsibility, progress toward individual goal; others category: appropriate verbal interactions, appropriate nonverbal interactions, eliminate behavior, use social amenities, helpful to others, maintain positive boundaries, refrain from bullying; and community category: join classroom discussion, responsible on transportation, planful/problem solving, follow expectations, English/language arts, math, history/social studies, and science. Total points are added daily to determine if the student is to advance on the school Level System. Upward movement on the Level System indicates the student is making positive choices and will have his/her privileges increase within the classroom and at school. At the end of each quarter, the total points and averages in each behavior category are summarized. The percentages in each

behavior target area indicate the areas in which the student is proficient or needs improvement. Total quarterly point percentages were used for data analysis.

Data Collection

After obtaining written informed consent, assent for participation, and Authorization for Release of Information from student participants and their parents, the PI obtained demographic information such as age, grade, race/ethnicity, socioeconomic status, family composition, home school district, mental health diagnosis, prescribed psychotropic medications, IQ scores, mental health services provided both inside and outside of school, and previous experience with EAA programs. Directors of Treatment provided demographic information, as parents of students have typically had poor response rates in providing information and returning forms.

After participants were assigned to either the experimental or control group and prior to the experimental group starting the EAA program, participants completed the SRP, parents were asked to complete and return the PRS, and teachers completed the TRS (see Table 4 for schedule). Upon completion of the 10-session EAA program, student participants in both experimental and control groups, their parents, and their teachers again completed the SRP, PRS, and TRS forms. Three months after completing the EAA program, participants in both experimental and control groups, their parents, and their teachers completed the SRP, TRS, and PRS forms for follow-up assessment. Data regarding grades, attendance, and point percentages were collected from Education Alternatives at these points in time. Table 4 describes the data collection and intervention schedule for Sessions 1 and 2.

Table 4

Schedule of Events

Date	Activity
January 2011	IRB Approval
January 24, 2011	3rd Quarter Begins (2010-2011 Academic Year)
February 2011	Orientation to Study for School Staff
	Participant Recruitment for Session 1
March 2011	Participant Recruitment Continued
	Pre-test BASC Forms Administered/Collected
March 23, 2011	EAA Program Begins – Session 1
March 30, 2011	3rd Quarter Ends
April 1, 2011	4th Quarter Begins
June 1, 2011	EAA Program Ends
June 2 – June 8	Post-test BASC Forms Administered/Collected
June 9, 2011	4th Quarter Ends
August 29, 2011	1st Quarter Begins (2011-2012 Academic Year)
September 2011	Follow-up BASC Forms - Session 1
	Participant Recruitment for Session 2
October 11, 2011	EAA Program Begins – Session 2
November 2, 2011	1st Quarter Ends
November 3, 2011	2nd Quarter Begins
December 13, 2011	EAA Program Ends

December 13-20	Post-test BASC Forms Administered/Collected
January 20, 2012	2nd Quarter Ends
March 2012	Follow-up BASC Forms Administered/Collected

Assessment Administration: SRP.

The Principal Investigator (PI) and the Directors of Treatment administered the SRP to student participants at the respective school locations. The PI has extensive training in psychological testing including the administration, scoring, and interpretation of the BASC-2 and this process was supervised by a licensed psychologist. Due to their already-established relationships with students, the Directors, both of whom are licensed counselors and have experience administering behavior rating scales, administered SRP forms to some of the students. The BASC-2 Behavior Assessment System for Children: Second Edition: Manual states the importance of establishing rapport between the examiner and respondent and communicating "appropriate information about the nature of the instrument and the value of the person's honest responses" (Reynolds & Kamphaus, 2004, p. 11). The PI and Directors described basic expectations and "emphasize(d) the importance of responding to all items on the form, even if the child (was) not absolutely certain how to answer a given item" (Reynolds & Kamphaus, 2004, p. 33). When the study began, student participants were informed they would receive a $10.00 Wal-Mart gift card after completing both the post-test and follow-up BASC forms. After Session 1 post-test data collection was completed, it was decided that student participants would receive the gift cards after every BASC form completion (pre-test, post-test, and follow-up) in order to provide incentive to complete the forms. This

incentive was increased due to some of the students having low motivation and high levels of frustration when completing the forms.

Assessment Administration: TRS.

The TRS was administered in the school setting. As described in the BASC-2 Behavior Assessment System for Children: Second Edition: Manual, rapport was established (whenever possible) with the teachers and the PI will describe basic expectations and "emphasize the importance of responding to all items on the form, even if the teacher is not absolutely certain how to answer a given item" (Reynolds & Kamphaus, 2004, p. 19). On some occasions, the PI was unable to meet directly with the teachers completing the TRS forms and therefore the Directors administered the TRS with the teachers.

Assessment Administration: PRS.

Due to staff shortages, EA case managers were unable to administer the PRS directly with parents. Instead, PRS forms were sent home to parents with a note asking them to complete and return the PRS form. In two cases, the Director of Treatment administered the PRS over the phone to a parent who was known to be unable to read.

Data Preparation

After each data collection point (pre-test, post-test, and follow-up), the PI used the BASC-2 ASSIST Plus computer software program to score SRP-C, SRP-A, PRS-C, PRS-A, TRS-C, and TRS-A forms (Reynolds & Kamphaus, 2004). This involves manual entering of responses and generating a computerized report of raw and T scores. T scores generated by the program were utilized for data analysis in this study.

FFTRC progress notes were reviewed to determine number of sessions attended and to examine adherence to the treatment protocol, or lesson plan curriculum. Attendance was recorded as the number of days missed within that quarter, grades were assessed using quarterly GPAs, and overall point percentages were determined at each data collection point.

Data Analysis

T-tests were performed on pre-test composite scores for the SRP, TRS, GPAs, attendance, and behavior percentage points to determine if there were any pre-existing differences between groups. If there were significant differences between the groups at pre-test, then gain scores were calculated and ANOVAs computed on post-test gain scores. If there were no significant differences between groups at pre-test, 2x2 ANOVAs on were conducted for each dependent variable (DV):

1. Behavior and Emotional Problems
    a. SRP: Internalizing Problems
        Emotional Symptoms Index
        Inattention/Hyperactivity
    b. TRS: Externalizing Problems
        Internalizing Problems
        Behavioral Symptoms Index
2. School Problems
    a. SRP School Problems
    b. TRS School Problems
3. Adaptive Skills/Personal Adjustment

a. SRP Personal Adjustment

b. TRS Adaptive Skills

4. Attendance
5. Grades
6. Behavior Percentage Points

After the three-month follow-up, 2x3 ANOVAs were conducted to determine if treatment gains were maintained after three months.

CHAPTER 4

RESULTS

Research questions using the BASC composite scores could only be examined for SRP and TRS scores due to a low response rate for the PRS. At pre-test, only 27 PRS forms were returned; at post-test, only 13 out of the 27 parents who completed the PRS forms at pre-test were returned. Although the PRS results were not used to explore the research questions, they were still examined at pre-test for preliminary analyses.

Preliminary Analyses

Student Self-Report (SRP) and Teacher Report Scale (TRS) composite scores.

A series of independent samples *t* tests were performed on the pre-test SRP and TRS composite scores to compare experimental and control groups for pre-existing differences (Table 5). The results indicated no pre-test differences for any of the SRP and TRS variables except for the TRS Adaptive Skills composite ($t = 2.167$, $p <. 05$). Specifically, scores for the experimental group ($X = 41.08$, $SD = 5.08$) were significantly higher than the control group ($X = 37.88$, $SD = 5.27$).

Table 5

Independent Samples t tests for SRP and TRS Pre-test Composites

BASC Composite	t-statistic	df	sig.
SRP:			
Emotional Symptoms Index	-.341	37	.719
Inattention/Hyperactivity	-.092	37	.927
Internalizing Problems	-.066	37	.945
School Problems	-.104	37	.918
Personal Adjustment	-.327	36	.746
TRS:			
Behavior Symptoms Index	.327	47	.745
Externalizing Problems	-.453	47	.653
Internalizing Problems	.823	47	.415
School Problems	-.915	47	.365
Adaptive Skills	2.166	47	.035*

*$p < .05$

Grade point averages (GPAs), attendance, and point percentages.

A series of independent samples *t* tests were performed on quarter grade point averages (GPAs), attendance (days missed per quarter), and total point percentage for the quarter prior to the start of the EAA program. The sample size for the experimental group was 27 and was 24 for the control group on all *t* tests. Results showed no differences for GPA, but did reveal significant differences for point percentages ($t = 3.10$, $p < .01$), in which students in the experimental group had higher point percentages ($X =$

74.93, *SD* = 11.18) than those in the control group (*X* = 61.57, *SD* = 18.29). Furthermore, results indicated a significant difference for attendance (t = -2.69, $p < .05$), whereby students in the control group had greater days missed in the previous quarter (*M* = 4.13, *SD* = 3.64) than those in the experimental group (*M* = 1.89, *SD* = 1.91).

Chi-square tests.

Chi-square tests indicated the participants were proportional across treatment and control conditions (χ^2 =. 176, p =.674). Furthermore, the distribution of students from each school (School A and B) was proportional across each condition (χ^2 = .020, p =.889).

Descriptive statistics by condition and time of assessment.

Means and standard deviations were computed for SRP and TRS composite scores, GPAs, attendance, and point percentages at pre-test, post-test, and follow-up for both the experimental and control groups. These variables are summarized in Table 6. For the PRS composite scores (see Table 7), these variables were only computed at pre-test.

As shown in Table 6, at pre-test, the mean SRP clinical composite scores for the experimental group ranged from 48.27 to 52.32; the mean SRP Personal Adjustment composite score was 48.7. These scores fall near the mean T-score (50), indicating that student participants were not reporting problems in the clinically significant range (70 or greater), or even the at-risk range (60-69). On the other hand, the mean TRS composite scores for the experimental group ranged from 61.44 to 73.48, indicating that the teachers tended to report emotional, behavioral, and school problems in the at-risk to clinically significant range. The mean TRS Adaptive Skills composite score at pre-test was 41.08,

falling within the normal range. For the control group, Table 6 reveals the same pattern of findings at pre-test for the SRP and TRS.

At post-test, the mean SRP clinical composite scores for the experimental group ranged from 49.69 to 56.28, falling in the normal range; the mean SRP Personal Adjustment composite score was 47.84, which also feel within the normal range. Once again, the mean TRS clinical composite scores were higher than mean SRP composite scores, ranging from 59.21 to 68.21 (at-risk range), and the mean Adaptive Skills composite score was 43.11 (normal range). For the control group, Table 6 reveals the same pattern of findings at post-test for the SRP and TRS.

Table 6

Means and Standard Deviations of Dependent Variables at Pre-test, Post-test, and Follow Up

Variable	Pre-test		Post-test		Follow Up	
	Mean	SD	Mean	SD	Mean	SD
SRP:						
ESI	48.36 (49.41)	6.74 (11.21)	49.68 (49.00)	10.31 (11.20)	47.44 (48.00)	7.01 (6.85)
Inatt/Hyp	52.32 (52.65)	9.89 (12.50)	56.28 (52.19)	8.52 (8.52)	54.16 (51.86)	9.60 (10.52)
Internalizing Probs	48.27 (48.47)	6.96 (10.80)	50.52 (49.06)	10.68 (11.01)	48.61 (48.79)	9.17 (6.86)
School Probs	52.09 (52.47)	12.08 (10.31)	53.24 (51.06)	13.02 (11.34)	50.47 (47.00)	6.80 (8.01)
Personal Ad	48.77 (49.81)	9.03 (10.54)	47.84 (48.75)	9.28 (9.58)	48.00 (47.93)	8.51 (9.14)
TRS:						
BSI	73.48 (72.46)	11.57 (10.24)	68.21 (71.79)	9.29 (11.52)	69.71 (69.71)	7.81 (13.84)
Externalizing Probs	71.68 (73.08)	11.04 (10.62)	67.67 (73.75)	7.80 (12.56)	69.00 (70.88)	9.87 (11.73)
Internalizing Probs	68.84 (65.25)	15.07 (15.46)	63.21 (60.62)	13.94 (8.96)	58.81 (59.12)	6.82 (14.40)
School Problems	61.44 (63.63)	7.39 (9.26)	59.21 (62.50)	7.54 (8.96)	62.67 (59.71)	7.89 (9.94)
Adaptive Skills	41.08 (37.88)	5.08 (5.27)	40.75 (38.29)	6.42 (7.26)	38.52 (40.81)	5.51 (7.03)

Note: Control Group is denoted in Parentheses. *N*s for SRP: Pre-test: 22 (17); Post-test: 19 (14); Follow Up: 18 (14). *N*s for TRS: Pre-test: 25 (24); Post-test: 24 (24); Follow-Up: 21 (17).

Although not enough parents returned PRS forms to conduct main statistical analyses at post-test and follow-up, the means and standard deviations at pre-test were calculated in order to compare pre-existing levels of functioning and pathology between parents, teachers, and youth. For the experimental group (n = 17), PRS External Problems scores ranged from 36 to 94 with a mean of 69.65 (SD = 16.20), which falls just below the clinically significant range. The PRS Internalizing Problems scores ranged from 32 to 69 with a mean of 51.88 (SD = 10.14), which falls within the normal range. PRS Behavior Symptoms Index scores ranged from 37 to 89 with a mean of 64.06 (SD = 12.29), which falls within the at-risk range. Finally, PRS Adaptive Skills ranged from 24 to 53 with a mean of 37.65 (SD = 8.14), which falls within the normal range. Scores on these indices are more similar to average teachers' reporting of problems, rather than the students who reported no problems at all within the clinically significant or at-risk ranges. For the control group (n = 10), PRS External Problems scores ranged from 39 to 90 with a mean of 68.10 (SD = 17.33), falling in the at-risk range. The Internalizing Problems ranged from 33 to 61 with a mean of 50.50 (SD = 0.25), falling in the normal range. The Behavior Symptoms Index ranged from 41 to 86 with a mean of 63.67 (SD = 13.64), falling in the at-risk range. Finally, the Adaptive Skills ranged from 23 to 52 with a mean of 35.70 (SD = 8.60), falling in the normal range. Taken together, these findings indicate that parents in the control group, on average, had the same patterns of reporting problems which the treatment group evidenced. Table 7 summarizes the PRS means and standard deviations at pre-test.

Table 7

PRS Pre-test Means and Standard Deviations

Variable	n	Mean	SD
Externalizing Behaviors (17.33)	17 (10)	69.65 (68.10)	16.20
Internalizing Problems (0.25)	17 (10)	51.88 (50.50)	10.14
Behavior Symptoms Index (13.64)	17 (10)	64.06 (63.67)	12.29
Adaptive Skills (8.60)	17 (10)	37.65 (35.70)	8.14

Note: Control group is in parentheses.

In Table 8, means and standard deviations are reported for the academic outcomes. As previously noted, significant differences were found on days missed and point percentage between the experimental and control group at pre-test, but not for grade point average. The findings show that, at pre-test and post-test, the experimental group had a B- GPA, whereas the control group evidenced a C+ GPA. For days missed, the results indicate that the control group missed almost twice as many days in the previous and most recent academic quarter than the experimental group. Lastly, the experimental group met about 75% of their school behavior expectations, whereas the control group met about 10 to 15% percentage points less.

Table 8

Means and Standard Deviations for GPAs, Attendance, and Point Percentages

Variable	n	Mean	SD
Grade Point Average Pre-test	27 (24)	2.94 (2.59)	.69 (.93)
Grade Point Average Post-test	26 (22)	3.03 (2.68)	.69 (.93)
Days Missed Pre-test	27 (24)	1.89 (4.13)	1.91 (3.64)
Days Missed Post-test	27 (24)	1.85 (3.75)	1.51 (3.96)
Point Percentage Pre-test	27 (24)	74.93 (61.57)	11.18 (18.29)
Point Percentage Post-test	27 (24)	75.84 (66.09)	10.43 (18.15)

Note: Control group scores in parentheses.

Intercorrelations of dependent variables at pre-test.

The age of youth was correlated with SRP and TRS pre-test composite scores (see Table 10). The results indicate that age was significantly correlated with SRP School Problems (r = -.462, p < .01), Internalizing Problems (r = -.343, p <.05), Inattention/Hyperactivity (r = -.476, p <.01), and Emotional Symptoms Index (r = -.398, p <.05) in a negative direction. On the other hand, it was significantly correlated with Personal Adjustment (r = .370, p <.05) in a positive direction. As age increased, then, students reported fewer emotional, behavioral, and school problems and greater adaptive skills at pre-test.

Intercorrelations of SRP and TRS composite scores at pre-test emerged in the expected directions. SRP School Problems, Internalizing Problems, Inattention/Hyperactivity Problems, and Emotional Symptoms Index composite scores

were positively correlated with one another and negatively correlated with Personal Adjustment. Furthermore, TRS School Problems, Externalizing Problems, Internalizing Problems, and Behavioral Symptoms Index composite scores were positively correlated with one another and negatively correlated with Adaptive Skills. These findings are consistent with previous studies (Reynolds & Kamphaus, 2004).

Intercorrelations of SRP and TRS composite scores at pre-test with one another indicate some significant correlations, which are presented in Table 9. TRS Externalizing Problems was positively correlated with SRP School Problems, SRP Internalizing Problems, and SRP Emotional Symptoms Index. TRS Internalizing Problems was positively correlated with SRP Internalizing Problems and SRP Emotional Symptoms Index, and negatively correlated with SRP Personal Adjustment. Finally, TRS Behavior Symptoms Index was positively correlated with SRP Emotional Symptoms Index and negatively correlated with SRP Personal Adjustment.

Table 9

Intercorrelations of SRP and TRS Pre-test Composite Scores

Variable	Age	SRP School Probs	SRP Intern. Probs	SRP Inatten/ Hyp	SRP ESI	SRP Pers Adj.
Age						
SRP:						
School Probs	-.462**					
Intern. Probs	-.343*	.646**				
Inatt/Hyp	-.476**	.563**	.737**			
ESI	-.398*	.564**	.877**	.821**		
Pers. Adj.	.370*	-.366*	-.453**	-.568**	-.743**	
TRS:						
Ext. Probs	-.123	.531**	.407*	.374*	.377*	-.185
Int. Probs	-.191	.203	.412*	.292	.378*	-.359*
School Probs	.010	-.073	-.048	.039	.059	-.147
BSI1	-.220	.237	.310	.312	.391*	-.499**
Adapt. Skills	-.117	-.044	-.028	-.033	-.050	.223

Intercorrelations of SRP and TRS Composite Scores at Pre-test (Continued)

Variable	TRS Ext. Probs	TRS Int. Probs	TRS School Probs	TRS BSI	TRS Adapt. Skills
TRS Pre:					
Ext. Probs					
Int. Probs	.196				
School Probs	.422**	.286*			
BSI	.689**	.607**	.696**		
Adapt. Skills	-.392**	-.021	-.677**	-.549**	

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

Intercorrelations of PRS composite scores indicated correlations in the expected directions as well. Age was negatively correlated with PRS Internalizing Problems (r = -.513, p = .04) and PRS Behavior Symptoms Index (r = -.541, p = .03). As age increased, parents reported fewer problems in these areas. PRS Behavior Symptoms Index was positively correlated with SRP School Problems (r = .541, p = .04), SRP Internalizing Problems (r = .532, p = .04), and PRS Externalizing Behaviors (r = .888, p = .000), and negatively correlated with PRS Adaptive Skills (r = -.868, p =.03). PRS Internalizing Problems was positively correlated with SRP Emotional Symptoms Index (r = .605, p = .02) and TRS Internalizing Problems (r = .499, p = .04). PRS Externalizing Problems was positively correlated with TRS Externalizing Problems (r = .590, p = .01) and negatively correlated with PRS Adaptive Skills (r = -.822, p = .000). Finally, PRS Adaptive Skills was negatively correlated with TRS Externalizing Problems (r = -.541, p = .03).

Intercorrelations of age, GPAs, attendance, point percentages, and SRP, TRS, and PRS composite scores at pre-test were also calculated and results were in expected directions. Attendance (number of days missed per quarter) was positively correlated with TRS School Problems (r = .470, p = .02), indicating that as the number of days missed increased, higher rates of school problems were reported by teachers. Grade Point Average (GPA) was positively correlated with TRS Adaptive Skills (r = .500, p = .01), indicating higher GPAs were associated with higher teacher ratings of adaptive skills. GPA was negatively correlated with attendance (r = -.454, p = .02), TRS Externalizing Problems (r = -.448, p = .03), TRS School Problems (r = -.747, p = .000), and TRS Behavior Symptoms Index (r = -.752, p = .000), and PRS Internalizing Problems (r = -

.554, p = .02). Point percentage was negatively correlated with TRS Externalizing Problems as well (r = -.421, p = .01).

Validity scales.

At pre-test, 39% (n = 15) of the SRP forms had at least one validity scale indicating "Caution," "High Caution," or "Extreme Caution" and 5% (n = 2) indicated "Extreme Caution" for the V index. Also at pre-test, 55% (n = 17) of the TRS forms had at least one validity scale indicating caution on some level and 8% (n = 4) indicated "Extreme Caution" on the F (n = 3) or Consistency (n = 1) index. For the pre-test PRS forms, 19% (n = 5) had at least one questionable validity scale and 4% (n = 1) indicated "Extreme Caution" for the F index. At post-test, 19% (n = 12) of completed SRP forms indicated at least one questionable validity scale and 17% (n = 7) indicated "Extreme Caution" range for the Consistency (n = 5) and/or V (n = 5) indices. For completed TRS forms, 31% (n = 15) had at least one questionable validity index and 10% (n = 5) indicated "Extreme Caution" for either the F (n = 3) or Consistency (n = 4) index. Finally, at follow-up, 30% (n = 10) of completed SRP forms had at least one questionable validity scale and 18% (n = 6) indicated "Extreme Caution" for the Consistency (n = 4) and/or V (n = 3) indices. For completed TRS forms, 24% (n = 9) had at least one questionable validity scale and 13% (n = 5) indicated "Extreme Caution" on the F index.

Main Analyses

Analysis of variance (ANOVA) for dependent variables.

Because there were no significant differences between groups at pre-test (except for TRS Adaptive Skills, point percentages, and attendance; in these cases, gain scores were calculated and gain score analysis conducted), ANOVAs were calculated for

dependent variables. Results indicated the experimental group demonstrated statistically significant reductions in TRS Externalizing Problems index scores at post-test, as compared to the control group ($F = 4.06$, $p = .05$). ANOVAs on other dependent variables were not significant: SRP School Problems ($F = .30$, $p = .59$), SRP Internalizing Problems ($F = .18$, p = .68), SRP Inattention/Hyperactivity ($F = 1.20$, $p = .28$), SRP Emotional Symptoms Index ($F = .04$, $p = .84$), SRP Personal Adjustment ($F = .09$, $p = .76$), TRS Internalizing Problems ($F = .41$, $p = .53$), TRS School Problems ($F = 1.90$, $p = .18$), and TRS Behavior Symptoms Index ($F = 1.41$, $p = .24$).

Due to pre-existing group differences at pre-test, a gain score analysis was analyzed for attendance and point percentage. These gain score analyses indicated no statistically significant differences at post-test between the experimental and control groups (attendance: $F = .243$, $p = .624$; point percentage: $F = 1.894$, $p = .175$). A one-way ANOVA was analyzed for GPA and results were also not significant ($F = 2.206$, $p = .144$).

Adjusted means at post-test.

Adjusted means were calculated to take into account pre-test scores. Table 10 describes the adjusted means at post-test for SRP and TRS composite scales.

Table 10

Adjusted SRP and TRS Composite Score Means at Post-Test.

Composite	Mean	Standard Deviation	n
SRP:			
School Problems	53.67 (49.67)	13.19 (10.22)	21 (15)
Internalizing Problems	51.43 (48.67)	11.17 (11.28)	21 (15)
Inattention/Hyperactivity	56.33 (50.93)	9.07 (15.06)	21 (15)
Emotional Symptoms Index	50.43 (48.47)	10.81 (11.38)	21 (15)
Personal Adjustment	46.86 (49.07)	9.46 (9.93)	21 (14)
TRS:			
Externalizing Problems	67.61 (73.75)	7.97 (12.56)	23 (24)
Internalizing Problems	63.22 (60.62)	14.26 (14.01)	23 (24)
School Problems	59.04 (62.50)	7.66 (8.96)	23 (24)
Behavioral Symptoms Index	68.04 (71.79)	9.46 (11.52)	23 (24)

*Control group scores in parentheses

Analysis of co-variance (ANCOVA) for post-test SRP and TRS scores.

In order to obtain a more precise estimate of the effect, ANCOVAs were used to determine the effect of group (experimental vs. control) on SRP and TRS post-test composite scores. Pre-test scores were used as the co-variate.

Self-Report of Personality (SRP) composite scores.

Initial results for the Self-Report of Personality indicated that, after controlling for pre-test scores, there was a statistically significant difference between groups at post-test

for Inattention/Hyperactivity ($F = 4.402$, $p = .05$). By looking at the means, it is evident that, although there was minimal change in Inattention/Hyperactivity scores for the control group (pre-test $x = 52.65$, post-test $x = 52.56$), there was an increase in the mean score for the experimental group (pre-test $x = 52.32$, post-test $x = 56.28$). Therefore, the results indicate there was a statistically significant increase in scores on Inattention/Hyperactivity for the experimental group (rather than a statistically significant reduction in scores for the experimental group). However, as discussed previously, two participants had validity scales in the "Extreme Caution" range at pre-test and seven at post-test (two participants had validity problems at both points). Taking out all seven participants would reduce N to 30, in which case no meaningful statistical analyses could be performed. For five of these participants, their individual composite scores were quite close to the mean across time, which was in the normal range and consistent with average scores for the sample; however, two participants (both in the experimental group) had pre-test scores in the normal range, post-test scores in the at-risk to clinically significant range, and follow-up scores within the normal to at-risk range, which was a pattern that differed from the other participants who were either generally in the normal range across all data points, or if scores were not in the normal range, they remained in the same range across data points. Due to questions about the validity of their response patterns at post-test, they were removed from the data set and ANCOVAs controlling for pre-test scores were repeated. Results were the same as previous ANCOVA results; however, there no longer was statistical significance for Inattention/Hyperactivity ($F = 2.60$, $p = .12$). It appeared that scores for these two participants artificially inflated post-test scores on Inattention/Hyperactivity, making it appear that the experimental group scores increased

after the intervention, while the control group scores stayed the same. By removing these two participants from the analysis due to validity concerns, results were no longer statistically significant.

There were no other statistically significant ANCOVA results for SRP composite scores; School Problems ($F = 1.111$, $p > .10$), Internalizing Problems ($F = .071$, $p > .10$), Emotional Symptoms Index ($F = .235$, $p > .10$), and Personal Adjustment ($F = .275$, $p > .10$). It should be noted only 15 control group participants completed both pre-test and post-test SRPs, whereas 19 participants in the experimental group completed both forms; therefore, these results are only preliminary and larger sample sizes are needed. Table 11 summarizes ANCOVA results with the participants who had questionable validity removed.

Table 11

ANCOVAs for SRP Composite Scores, Controlling for Pre-test Composite Scores

Dependent Variable	F	Sig	Partial Eta Squared
School Problems	.111	.74	.004
Internalizing Problems	.071	.79	.002
Inattention/Hyperactivity	2.589	.12	.077
Emotional Symptoms Index	.235	.63	.008
Personal Adjustment	.275	.60	.009

Teacher Report Scale (TRS) composite scores.

Results for the Teacher Report Scale (TRS) indicated that, after controlling for pre-test scores, participants in the experimental group had significant reductions in Externalizing Problems at post-test as compared to the control group ($F = 3.357$, $p = .07$) and marginally significant reductions in Behavior Symptoms Index scores ($F = 2.725$, $p = .10$). After taking into account a gain score analysis, the treatment intervention also did not affect Adaptive Skills ($F = .044$, $p = .84$); however, as stated previously, before the intervention began participants already had adaptive skills in the normal range. Twenty-three teachers completed TRS forms for participants in the experimental condition and 24 teachers completed TRS forms for participants in the control group; therefore, a comparison was made between two groups of similar size, though the sample size remains low.

Table 12

ANCOVAs for TRS Composite Scores, Controlling for Pre-test

Dependent Variable	F	Sig	Partial Eta Squared
Externalizing Problems*	3.357	.07	.071
Internalizing Problems	.019	.89	.000
School Problems	.625	.43	.014
BSI**	2.725	.10	.058
Adaptive Skills***	.044	.83	

**p is significant at < .10*

***p is marginally significant at .10*

****ANOVA was completed for Adaptive Skills Gain Score*

GPA, attendance, and point percentage.

When controlling for pre-test GPA, there was no significant difference between groups for post-test GPA.

Repeated measures Analysis of Covariance (ANCOVA).

Repeated-measures analyses were only performed for the TRS forms on the post-test dependent variables that evidenced significant differences at post-test. For the SRP dependent variables at three-month follow-up, no repeated-measures analyses were performed due to lack of significant findings at post-test. Although sample size was low, a 3 x 2 repeated measures ANCOVA was calculated for the TRS Externalizing Problems and TRS Behavior Symptoms Index variables. Results for Externalizing Problems ($F = 3.15$, $p = .08$) was significant; however Behavior Symptoms Index ($F = .762$, $p > .10$) was not significant. This indicates that, at a three-month follow-up point in time, the significant effects found at post-test were maintained for Externalizing Problems, but not for Behavior Symptoms Index. Figure 1 presents the mean composite scores at three points in time for the experimental and control groups on the TRS Externalizing Problems composite. It demonstrates that the experimental group mean dropped at post-tests and, although it increased at the three-month follow-up, it remained lower than the mean at follow-up for the control group. On the other hand, the control group had very small decreases in mean Externalizing Problems scores at all three data points but the experimental group decreases were significantly greater.

Figure 1

TRS Externalizing Problems Mean Composite Scores at Three Data Points

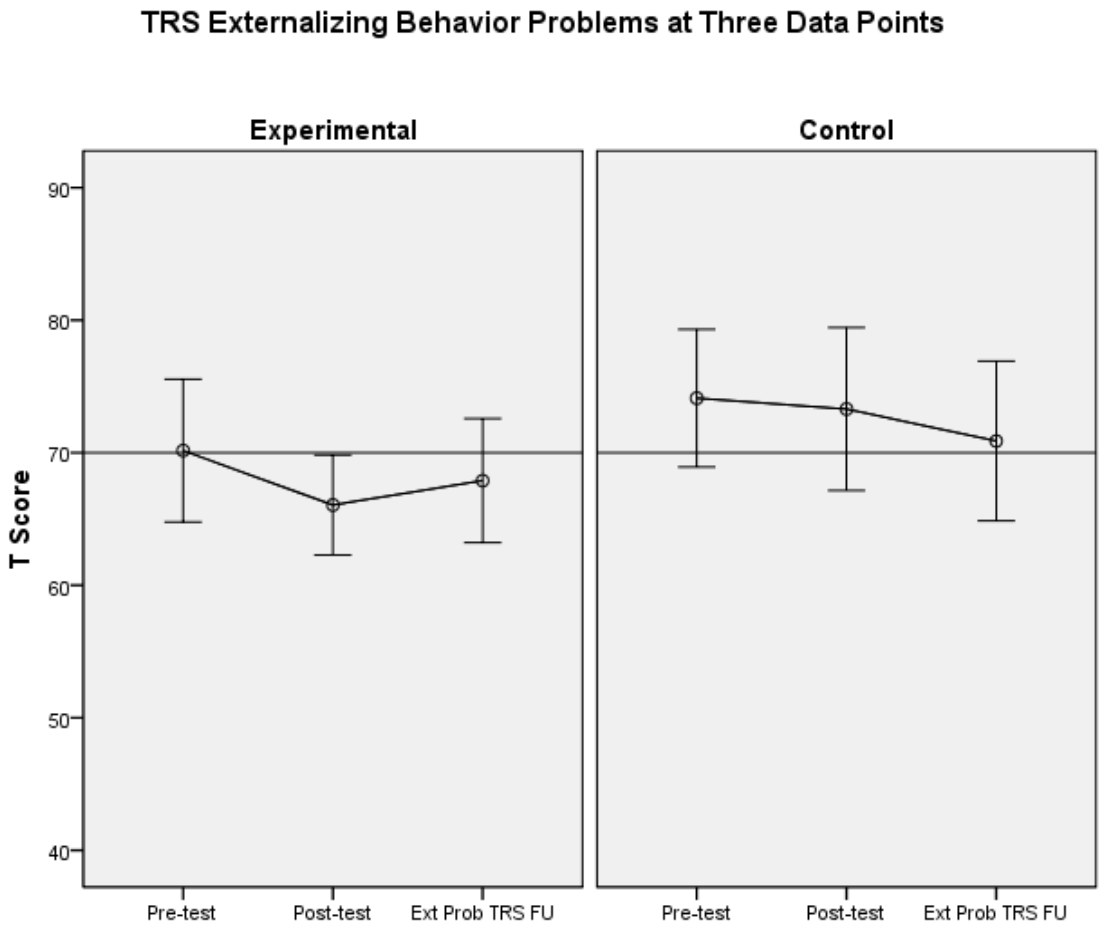
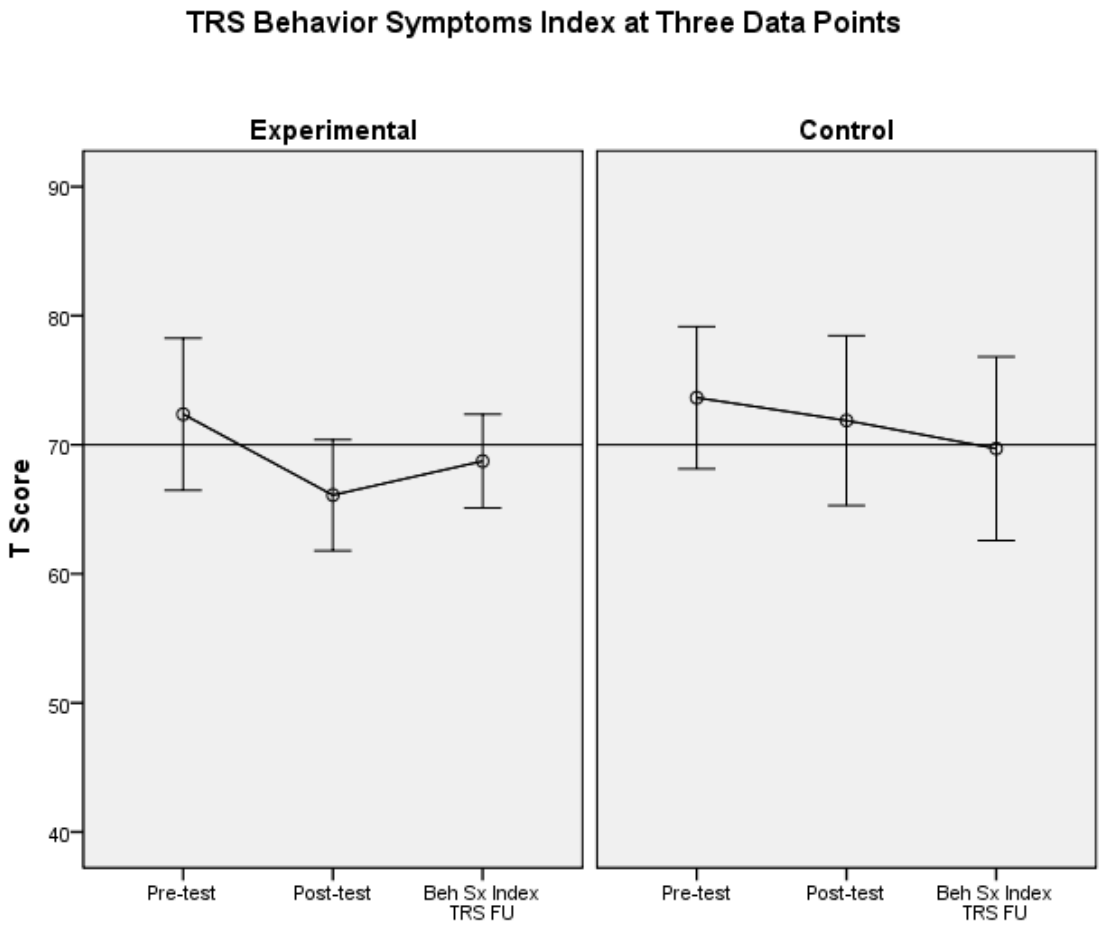


Figure 2 presents the mean Behavior Symptoms Index composite scores at three points in time by groups. In this case, there is a greater reduction in BSI scores for the experimental group than the control group at post-test; however, at follow-up the means are much closer, as the mean BSI score for the experimental group increased, while the mean BSI score for the control group continued to minimally decrease across all three points in time.

Figure 2

Mean TRS Behavior Symptoms Index Composite Scores at Three Data Points



CHAPTER 5

DISCUSSION

Discussion

Anecdotal evidence indicates therapeutic interventions involving horses have positive effects on participants. Although there are some published qualitative and quantitative research studies providing evidence of the effects of EAA on various populations, there is a need for more scholarly research in this area. The purpose of the present pilot study was to examine the effects of an EAA program on students identified as Emotionally Disturbed.

Research Question 1: What are the effects of an EAA program on behavioral and emotional functioning?

According to teachers' ratings of students, participants in the experimental group had statistically significant reductions in externalizing behaviors at post-test, as compared to the control group. Results also indicated that participants in the experimental group had marginally significant reductions in Behavior Symptoms Index scores as compared to the control group. There were no statistically significant results for TRS Internalizing Problems scores. For the student self-report ratings, there were no significant effects.

These significant findings are important because they suggest that the addition of an EAA program with Emotionally Disturbed students already receiving interventions, such as counseling and behavioral reinforcement, decreases externalizing behavior problems. Previous research has demonstrated the positive effects the presence of a dog has on children with disabilities and emotional and behavioral problems (e.g., Anderson and Olson, 2006, Esteves & Stokes, 2008, and Prothmann, et al., 2006), suggesting the incorporation of animals in a school program may have positive effects on children's functioning. There is minimal research that has demonstrated effects of EAA programming on behavioral functioning. The only published study to date that investigated the effects of an EAA program on behavioral functioning (along with other factors) was Kaiser, et al. (2004), who found that a five-day EAA program significantly reduced self-rated anger scores at post-test for children aged 7-17, even though anger scores were within the normal range at pre-test. These results are consistent with the teacher ratings in the present study, indicating a significant effect on reducing externalizing problems, which includes a subscale of aggression. On the other hand, Kaiser, et al. (2004) found no significant differences at post-test on a measure of self-perception, which included a subtest of behavioral conduct (along with subscales of global self worth, social acceptance, athletic competence, physical appearance, and social competence). Perhaps the lack of significance was due to self-perception composite measuring a mix of adaptive skills along with behavioral conduct. Because there are no other published studies that investigated and found significant effects on behavioral functioning, the present pilot study is important because it was the first to do so.

In fact, the marginally significant findings for the Behavioral Symptoms Index (BSI) support the findings for the Externalizing Problems as well. The BSI is comprised of subscales that fall under both the Externalizing (Hyperactivity and Aggression) and Internalizing (Depression) composites, and also includes subscales that do not fall under either (Attention Problems, Atypicality, and Withdrawal). It is likely that the results were only marginally significant on the BSI because it included a wide range of variables, only two of which were externalizing problems (and Conduct Problems was not included). This indicates the inclusion of the other, non-externalizing variables, likely affected the level of significance. Therefore, the EAA program had the greatest effect on hyperactivity, aggression, and conduct problems.

Regarding teachers' ratings of internalizing problems, results were not significant. These results are consistent with Ewing, et al. (2007), who evaluated the effects of an EAA program on youth identified as Severely Emotionally Disturbed and found no significant effects on self-rated measures of depression and loneliness at post-test. On the other hand, Klontz, et al. (2007) studied the effects of an Equine-Assisted Experiential Therapy (EAET), in group therapy format, on adults from a residential program. Results indicated significant and stable reductions in the Global Severity Index (GSI) of the Brief Symptom Inventory (Derogatis, 1993). The BSI includes the following subscales: Somatization, Obsessive-Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism, and the GSI is an overall rating of level of psychological distress. Therefore, participation in an EAA program had a significant impact on emotional functioning for adults, though the present study found no significant impact on emotional functioning for children and adolescents. The Klontz,

et al. (2007) study did have design flaws, however; the participants continued in their treatment-as-usual with the addition of the EAET program and there was no control group that continued in treatment-as-usual but did not participate in the EAET program.

In terms of the lack of significant findings for the student self-report ratings, a possible explanation may reside in understanding how youth may be likely to under-estimate or minimize their mental health problems. Previous research has shown there is often little agreement in ratings of child and adolescent problems among informants (Kazdin, French, & Unis, 1983; Kolko & Kazdin, 1993; Salbach-Andrae, Lenz, & Lehmkul, 2009; Salbach-Andrae, Klinkowski, Lenz, & Lehmkuhl, 2009). In a study examining the patterns of agreement among youth, parent, and teacher ratings, Salbach-Andrae, et al. (2009) found that adolescents who were referred to a child and adolescent unit of a psychiatric facility had low to moderate agreement with their teachers and parents on Achenbach rating scales (Achenbach & Rescorla, 2001). More specifically, there was less agreement for adolescents diagnosed with internalizing disorders than there was for adolescents diagnosed with externalizing disorders. Similar to the present study, Salbach-Andrae, et al. (2009) found that, although youth with internalizing disorders tended to rate themselves within the normal range on the internalizing scale, parents and teachers reported internalizing problems within the borderline range. For youth with externalizing disorders, adolescents tended to rate themselves within the normal range on externalizing problems, while parents and teachers tended to rate the youth within the pathological range. Researchers have found that in studies of non-clinical samples, youth had a tendency to report higher levels of symptom severity than their teachers and parents (e.g., Kolko & Kazdin, 1993). On the other hand, other studies

have found that studies involving clinical samples (i.e. clinic-referred), youth tended to rate the severity of symptoms as lower than their parents (e.g., Kazdin, et al., 1983). Salbach-Andrae, et al. (2009) suggested possible reasons for this discrepancy were denial of problems, an attempt to minimize psychological problems, and/or lack of insight.

As evidenced by their self-ratings in the normal range and discrepancy from parent and teacher ratings, participants in the present study may have approached the SRP assessment in a defensive manner, denying or minimizing psychological problems, or they may have lacked insight into their own psychological problems. The Kaiser, et al. (2004) study, described above, found significant reductions in self-ratings of anger at post-test. This differs from results of the present study, which found no significant reductions in self-ratings of behavioral functioning. One explanation for this difference is that the participants in the Kaiser, et al. (2004) study were selected from a non-clinical sample, whereas participants in the present study were chosen from a clinical sample. The participants in the present study were more likely to be defensive and/or lack insight than the participants in the Kaiser, et al. (2004) study, and therefore less likely to accurately report levels behavioral functioning.

The present study found non-significant results at post-test for the SRP Inattention/Hyperactivity composite. There is no Inattention/Hyperactivity composite for the TRS; Hyperactivity is a subtest under Externalizing Behaviors and BSI, and Attention Problems a subtest under School Problems. Due to sample size, composite scores were used for statistical analysis, rather than subtest scores. By comparison, Bass, et al. (2009) found that children diagnosed with an Autism Spectrum Disorder who participated in a 12-week EAA program demonstrated significant reductions in inattention and

distractibility at post-test. These findings differed from the present study, which found that participation in an EAA program had no impact on the SRP Inattention/Hyperactivity composite at post-test for children identified as ED. Perhaps this indicates EAA is more effective in addressing inattention in children diagnosed with ASD, and not in children and adolescents who are not. On the other hand., the Bass, et al. (2009) study only looked at inattention, and not hyperactivity.

Research Question #2: What are the effects of an EAA program on school functioning?

Results indicated no statistically significant differences between groups at post-test. As with the behavioral and emotional composite scores, there was inconsistency on self-report and teacher-report scores. SRP scores on School Problems tended to fall within the normal range, while TRS scores on School Problems tended to fall within the at-risk range. It is important to note that the TRS School Problems composite assesses problems in the areas of learning and attention, whereas the SRP School Problems composite assesses problems in the areas of attitude toward school and teachers, and sensation seeking; these composites are not measuring the same variables. Although it is possible that students tended to under-report internalizing and externalizing problems, it is possible that students accurately reported that, on average, they had positive attitudes toward school and their teachers, although they may have had problems with learning and attention, as reported by teachers. The EAA program occurred at a location separate from the school locations and the intervention did not target students' feelings toward school and/or teachers. Although it was expected that participation in an EAA program may have had a positive effect on how students felt about their school experience, it is

not surprising that the intervention did not have a significant impact on these areas. As such, the EAA program also did not target learning problems, and therefore it is not surprising that the TRS School problems composite analysis was not significant as well.

Research Question #3: What are the effects of an EAA program on adaptive skills and personal adjustment?

Results indicated no statistically significant differences at post-test for either TRS Adaptive Skills or SRP Personal Adjustment. On average, both teachers and youth rated adaptive skills/personal adjustment within the normal range. These results differ from previous studies on the effects of EAA programs. In a qualitative study, Burgon (2003) found that participation in an EAA program had a positive effect on six women diagnosed with depression, schizophrenia, or psychosis in terms of self-confidence and motivation. In another qualitative study, Bizub, et al. (2003) also found adults with psychiatric illness reported increased self-esteem and self-efficacy after participating in a 10-week EAA program. Hakanson, et al. (2009) found that participation in an EAA program resulted in improvements in self-confidence and self-image for adults with chronic back pain. Miller and Alston (2004) found that parents reported improvements in their disabled children in areas such as personal responsibility, self-esteem, and socialization skills. On the other hand, present results are consistent with results of quantitative studies on the effects of participation in an EAA program. Ewing, et al. (2007) found no significant differences at post-test on self-reported measures of self-perception, empathy, or locus of control. Kaiser, et al. (2004) found no significant difference at post-test for children on self-reported measures of social functioning, self worth, social acceptance, and social competence.

The results of both present and past quantitative studies are surprising. Hallberg (2008) and McDaniel (1998) suggest that self-esteem grows from mastering new skills and experiencing an increase in competence for riding and handling horses. They suggest that EAA programs follow a general curriculum where each session builds upon skills from the previous session, resulting in a sense of mastery, which can also improve self-esteem. Hallberg (2008) and McDaniel (1998) also suggest that practicing verbal and non-verbal communication with horses during participation in EAA programs results in improved communication skills and increased self-awareness. The TRS Adaptive Skills composite included Functional Communication as a subscale, along with Adaptability, Social Skills, Leadership, and Study Skills. Perhaps if these subscales, particularly Functional Communication, Social Skills, and Leadership, could have been analyzed independently, results would have been significant. Participation in the EAA program did not directly address study skills, and therefore the intervention would not be expected to have an impact on this variable. Similarly, the SRP Personal Adjustment composite included the subscale Self-Esteem, along with Relations with Parents, Interpersonal Relations, and Self-Reliance. Participants' relationships with their parents were not addressed in the EAA program and therefore one would not expect the intervention to have an impact on this subscale. On the other hand, if the subscales could have been analyzed individually, perhaps there would have been significance for self-esteem or self-reliance.

As stated, average TRS scores on the Adaptive Skills composite were in the normal range, while average scores on clinical scales were in the clinically significant (BSI and Externalizing Problems) or at-risk (Internalizing Problems) ranges at pre-test

and at-risk range at post-test. It would be expected that, if clinical composite scores are high, adaptive skills composite scores would be low, though that was not the case here. It is likely that, in the present study, teachers approached the rating scales with the knowledge and awareness that the students had been identified as ED, diagnosed with at least one psychological disorder, receive counseling and/or psychiatric treatment, and were placed in a separate educational facility due to being unsuccessful in their home schools. Therefore, teaches would be well aware of the behavioral and emotional problems of the students, as they differed from a non-clinical population who would not meet these criteria. On the other hand, it is likely teachers rated students on measures of adaptive skills as they compare to one another, rather than how they compare to a non-clinical sample. Were these students in typical mainstream classrooms, it is anticipated that teachers would be likely to rate them as lower on measures of adaptive skills. This may explain why the average Adaptive Skills scores were in the normal range, while the clinical scales were not, and it may also explain why there was no significance on this variable. One final explanation is that, if the teachers accurately rated the students as having adaptive skills in the normal range at pre-test, one would not expect there to be a significant change at post-test.

On the other hand, students, on average, rated themselves in the normal range across all variables. As explained above, it is likely that participants in the present study approached the assessment process defensively, unwilling to admit to problems, and/or lacked insight and were not aware of their problems. Therefore, taking this response style into account, it is likely that while students under-reported clinical problems, it is

also likely that they over-reported levels of personal adjustment, which explains why there were no significant results on this variable.

Research Questions #4, #5, and #6: What are the effects of an EAA program on grades, attendance, and point percentages.

To assess the effects of an EAA program on grades, quarterly GPAs were used and results indicated no statistically significant difference between groups at post-test. These findings are not particularly surprising, as the intervention did not specifically seek to improve academic performance or occur in the school environment. There was anecdotal evidence that involvement in the EAA program may have increased one particular participant's attendance on riding days; one parent reported at the final EAA riding session (parents were invited to attend) that she has difficulty getting her son up, dressed, and ready for school every day, except on riding days he got himself up, dressed and ready to leave on time. Although the EAA may not have had an impact on overall attendance for the quarter, it may have had an impact on students' attendance on riding days in particular; however this was not measured in the present study. It was anticipated that the intervention may have had an impact on point percentages, as this variable was a daily rating of students' behaviors in a number of areas. There are two possible reasons why significance was not found on this variable. First, there was overlap between the end of the quarter and the beginning of the intervention; in Session I it was a one-week overlap and in Session II it was a three week overlap. This indicates the pre-test point percentage was not a "clean" pre-test score. Another possible reason is that the point percentage variable rates students in a total of 26 areas, including performance in four academic subjects. These 26 areas are broad and not necessarily related to one another. If

the present study had focused on point percentages in specific areas, perhaps the results would have been significant.

As with TRS Adaptive Skills, we found pre-existing differences between groups at pre-test for attendance and point percentages. Students in the experimental group had missed fewer days of school and had higher point percentages in the previous quarter, as compared to the control group. This may indicate that students with better attendance and better behavior at school are more likely to be willing to engage in an EAA program.

Research Question #7: Are any gains demonstrated at post-test maintained at a three-month follow-up?

Results indicated that, for TRS Externalizing Behaviors, gains were maintained at the three-month follow-up; however, for TRS Behavioral Symptoms Index, gains were not maintained at follow-up. The sample size for SRPs was too small at follow-up to perform meaningful statistics. As discussed previously, it is likely the marginal significance for BSI was not maintained at follow-up due to the BSI composite being comprised of both Externalizing and Internalizing Problems subscales and did not include the Conduct Problems subscale of the Externalizing Problems composite.

Limitations

Two consistent limitations in the present study were sample size and parent participation. This study aimed to recruit approximately 60 participants; however, due to lack of parent response and students' interest in participation, the sample size was only 52. Although student participants were offered $10.00 Wal-Mart gift cards for completing BASC SRP forms, some refused to complete them, and some attempted but did not complete enough items for the form to be scored. This reduced the number of SRP results that could be analyzed and lowered the power. Parent response rates for

completing BASC PRS forms were quite low and there were not enough results for statistical analysis.

Another limitation is that the sample is heterogeneous. Although all participants were identified as Emotionally Disturbed, they differed in their diagnoses. Thirty-one percent of the sample had at least one behavior disorder (e.g., Attention-Deficit/Hyperactivity Disorder, Oppositional Defiant Disorder, Conduct Disorder), 31% had co-morbid diagnoses in more than one category (many including behavior disorders), and some did not have any behavior disorders. Also, not all participants received the same type of counseling (in school or out of school) and a few did not receive any counseling at all).

Yet another limitation was the fact that it was not always the same teacher who rated students at all three data collection points. Although in many cases it was the same teacher, each classroom is comprised of not only one teacher, but also associate teachers, and often 1:1 education staff who provide extra support in the classroom. Therefore, one teacher's opinion of a particular student's emotional or behavioral functioning may differ from another teacher.

The participants who were too heavy for the EAA program, but were interested in participating in the study, were automatically placed in the control group. Therefore, the average weight of the control group was likely much higher than that of the experimental group (though weight was not measured for this study).

Scheduling problems made it difficult to get pre-test GPAs, attendance, and point percentages. For both sessions there was overlap; for Session I the EAA program began one week before the quarter ended and for Session II, the EAA program began three

weeks before the quarter ended. Therefore, when interpreting the results, it is possible that the pre-test assessment of academic functioning was confounded by intervention effects, thus inflating them. If these baselines measures had occurred before the intervention began, significant change may have been detected.

Future Directions for Research and Practice

Because there are so few published studies on the effects of EAA, there are many directions for future research, which should build upon the findings of the present study. Results of the present study need to be replicated with a larger sample size in order to provide confidence in the significant, and marginally significant, results. Parent involvement and a heterogeneous sample could also improve findings. For example, if a research team had greater resources, research assistants could meet with parents at their homes to administer BASC PRS forms. Also, gift cards for parents completing forms could also improve participation and return rates. Including parent rating scales is important. In clinical settings, it is recommended that, particularly for children, multiple informants are included in assessment in order to obtain greater breadth of clinical information. By including ratings from parents, researchers would be able to compare PRS results with SRP and TRS results. If PRS results were similar to TRS results, that might provide greater confidence in the findings. Also, parents observe their children at home, while teachers observe children at school. Perhaps children's behavioral and emotional functioning would be different across settings, which could provide information as to the effects of participation in an EAA program.

The present study found statistical significance for externalizing behaviors. Future studies could examine the effects on children diagnosed only with behavior

disorders, or even more specifically, children with specific disorders such as ADHD or Oppositional Defiant Disorder. The present study included a large age range (9-15) and found that older students were less likely to admit to having problems. Future studies should include samples with a smaller age range; for example a sample of children aged 8 to 12 may demonstrate greater effects. There may be more effective ways of doing this type of research with adolescents; for example, qualitative methods may provide opportunity to explore why adolescents were less likely to report problems as compared to younger children. Perhaps if the PI or a research assistant could build rapport with the participants by having a stronger presence from the beginning of the study, adolescents may feel more comfortable self-disclosing on rating scales.

In general, student participants struggled with completing the SRP forms, as reported to the PI by the Directors of Treatment. They reported that some students complained about the length of the instrument and that others needed multiple sessions to complete it. Because this was a pilot study, and because there is so little established research in this area, the present study used an instrument that measured children and adolescent functioning in a variety of areas. Perhaps future studies should focus on a more narrow range of problems and/or strengths, which would allow for use of shorter assessment instruments. For example, a study with a larger and more heterogeneous sample could look at individual subtests of a particular composite (e.g. Externalizing Problems) and determine if results from the present study can be replicated, and if all three subtests are impacted by the intervention, or if only one or two are impacted.

One finding that was not the focus of the study but nonetheless was interesting, was that there was a pre-existing difference between groups at pre-test for TRS Adaptive

Skills as well as for attendance and percentage points. This suggests that students with greater adaptive skills, higher percentage points, and who missed fewer school days were more likely, or more willing, to engage in an EAA program. Future research studies should include methods that might encourage students with fewer adaptive skills (or who miss more school or have lower behavioral percentage points), those who are hesitant to participate in an EAA program, or those who want to stop after the first session to give it a try or try for a bit longer. This may mean that EAA staff need to put extra effort in building rapport with those who want to stop after the first session, in order to determine the reasons and potentially address them. For example, if a participant attends the first session, which is orientation and does not involve riding, and decides not to continue in the EAA program, he or she may feel nervous or scared about riding. If he or she can meet individually with the EAA instructor, fears may be addressed, and perhaps the participant can be reassured that if he/she does return the following week, he or she does not have to ride but can come anyway and see how it goes. These hesitant participants may also need extra support from school staff; either by having a supportive staff member attend the next EAA sessions, or to process feelings of anxiety prior to returning. For those students who did not want to participate in the EAA program but were willing to participate in the control group, perhaps if they had been provided with more information about the EAA program, had been encouraged to attend the orientation before deciding, and/or had the opportunity to build rapport and process feelings with a research assistant, EAA staff member, or school staff member, perhaps they would have been more likely to participate. These issues should be considered and addressed in future studies of this nature.

Most EAA programs are comprised of two components: the groundwork and the riding. Future studies should separate the two portions of the intervention to determine what effects each has on results. For example, one group could participate in only the groundwork portion, while another group participates in both the groundwork and the riding, and a control group participates in neither. This could provide evidence that simply being in the barn milieu and interacting with horses is the part of the intervention that impacts results; or, results could indicate the riding portion is an imperative part of the EAA process. Also, there are other aspects of EAA that were not included in this study, such as carriage driving. Yet another group could participate in carriage driving, rather than riding, to determine the effects of this type of EAA. If results indicate participating in carriage driving, instead of riding, produces similar results, then perhaps individuals who are afraid of, or unwilling to ride, or those who are too heavy to ride, could gain the same benefits by participating in carriage driving instead.

Although the present study did not find significant effects on school functioning, it was determined that this was not surprising as the EAA program occurred outside of the school setting and did not specifically address study skills, inattention, learning problems, attendance, or students' attitude toward school or teachers. FFTRC has an education program on grounds, called the Gaitway School, which incorporates EAA within an educational setting. According to the website, Gaitway School is a public high school "for students with a history of poor attendance and poor academic performance" (Fieldstone Farm Therapeutic Riding Center, 2012). It provides learning opportunities with hands-on experiential opportunities with horses and the farm environment. Anecdotal evidence indicates students at Gaitway demonstrate improved attendance and

grades, and after graduation they move on to post-secondary education and career opportunities. The field of EAA would benefit from qualitative and quantitative research on programs such as Gaitway School, which incorporate horses and groundwork into an academic setting. Research could compare students enrolled in the Gaitway School with a matched-sample of students enrolled in regular education settings and compare the groups on measures such as school functioning. Qualitative research, such as case studies and ethnographic designs could provide valuable information regarding the effectiveness of this type of educational program.

Future research should also include mixed methods. Pauw (2000) suggested there is "a clear difference between a statistically significant effect and a clinically meaningful effect. The positive clinical effects of (EAA programs) noticed by those concerned are not always reflected in the results of statistical tests" (p. 525). Therefore, the inclusion of qualitative methods can supplement quantitative results and provide additional important information. By including surveys, journals, interviews, and/or focus groups of students and teachers, researchers may be able to identify underlying factors that quantitative measures cannot assess. For example, presently there is a lack of a defined theory to explain how EAA works. Qualitative research could explore and identify underlying functions and benefits that rating scales do not assess. Furthermore, information could be obtained regarding issues presented in the present study; for example, why students were defensive in their response style and/or why teachers rated students in the normal range on adaptive skills. There is a lack of theory regarding how EAA is effective and qualitative methods could provide support for a theory to explain the phenomenon.

There was no correlation between dosage and post-test scores; therefore, the fidelity of this student gives confidence to the results. The majority of participants attended eight sessions, rather than the full 10 sessions, which indicates eight may be enough to impact externalizing behaviors. On the other hand, perhaps a greater number of sessions would be associated with even better outcomes. Future studies could determine if adding another set of 8 to 10 sessions would result in different, or better, results. For example, perhaps 8 to 10 sessions are enough to improve behavioral functioning, but another set of 8 to 10 sessions could impact emotional functioning or adaptive skills. For any clinical intervention, it is helpful to know, on average, at what point progress plateaus and an increase in sessions is not likely to result in an increase in gains. The cost of participation in EAA programs is high; therefore, the difference in cost between eight sessions and 10 sessions is significant (for FFTRC one session costs $42.00; therefore, the difference between eight sessions and 10 sessions is $84.00 per student), and the difference in cost between one set of eight sessions and two sets of eight sessions is even more significant ($336.00 per student). This is not including the cost to the school of providing transportation for the students to and from the EAA facility.

Additionally, the present study originally aimed to conduct follow-up data collections at one-month and three-month periods. Due to summer break starting two weeks after completion of Session I, BASC forms would need to be sent home. Due to a lack of parent participation, it was determined that the cost of purchasing and mailing forms home during summer break was not worthwhile and therefore it was decided follow-up data would be collected only at three months after post-test. Future studies should include both one-month and three-month follow-up data collections in order to

determine if effects are present sooner after completion of the intervention. Also, scheduling problems made it difficult to establish a "clean" pre-test for grades, attendance, and point percentages; therefore, future studies should attempt to collaborate with EAA programs and academic schedules to have the intervention begin just after the end of a quarter. Finally, it is important that, in future studies, all raters are directly trained in the administration and completion of rating forms, as well as provided with incentives for completion.

Clinical Practice.

Results of the present study can be applied to clinical practice. There is a growing interest in the effects of animal-human interaction in clinical settings. According to teacher ratings, students identified as ED who participated in an EAA program demonstrated greater reductions in externalizing behaviors. This indicates schools with students who have externalizing behavior problems may benefit from including EAA programs in their curriculum. Parents of children with externalizing behavior problems should also be made aware of these findings, as they may want to independently enroll their children in EAA programs as well. Clinicians should consider alternative interventions that include animals. It is presumed that most clinicians and trainees are not aware of the positive effects of participation in an EAA program. Increased knowledge about the positive effects of this type of intervention could improve outcomes in working with children. Finally, clinicians should identify other, perhaps similar, alternative interventions that could improve behavior problems. As stated previously, participants in this study were already receiving behavioral reinforcement and most were also receiving individual counseling and/or psychiatric treatment. It was the addition of

the EAA program that made the difference in improving behavior problems. Perhaps other experiential interventions that provide the opportunity for children to actively engage in maintaining behavioral control while learning new skills and interacting with animals in an unfamiliar environment with unfamiliar people could also be effective in reducing hyperactivity, aggression, and/or conduct problems.

The present findings indicate participation in an EAA program did not affect internalizing problems or school functioning. Clinicians and educators can be informed by this information; perhaps internalizing problems are best addressed by traditional counseling which aims to directly explore and process feelings such as sadness, anger, and anxiety, whereas an EAA program is much more behaviorally-based as an experiential modality. Perhaps, in order to affect school functioning, interventions need to be based within the school environment. As stated previously, research has found that the presence of a dog in a special education classroom setting had a positive effect on students' behavioral and emotional functioning. Including an AAA program that is outside of the school setting may not have an effect on students' functioning in relation to grades, attendance, point percentages, learning problems, and attention problems.

As with future research, clinical and educational settings should also determine interventions to help engage students who are less adaptive or doing worse in school in alternative programs such as EAA programs. Perhaps more support, increased staff, improved rapport with EAA staff, and/or more information would help ease worries and increase willingness to participate in a program that could be beneficial. Finally, although there is a weight limit for participating in the riding part of EAA, perhaps

heavier students could benefit by attending the groundwork portions of the sessions, and/or alternative EAA interventions such as carriage driving.

Conclusion

The present pilot study aimed to determine the effects of an EAA program on students identified as ED. Results of the present study contribute to the small, yet growing, literature on the effects of EAA. Compared to the few previous studies that investigated the effects of an EAA program on behavioral and emotional functioning, the present study had an improved study design, because it included multiple raters (youth and teachers), a larger sample size, and a control group. Results indicated that, based on teacher ratings, participation in an EAA program had a significant impact on decreasing externalizing behaviors such as hyperactivity, aggression, and conduct problems. Future studies should aim to replicate these findings with larger sample sizes in order to provide support to these results. Clinicians and educators should be aware of the present findings and consider adding an EAA program to existing therapeutic and educational programming, particularly for children and adolescents with behavior problems.

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APPENDICES

APPENDIX A

Dear Parent or Guardian:

Hello, my name is Tira Stebbins, and I am a PhD Candidate in the PhD Program in Urban Education at Cleveland State University. I am asking for your permission for your child to participate in a research study that will inform the therapeutic horseback riding program at Fieldstone Farms Therapeutic Riding Center, in partnership with Education Alternatives, and contribute to the general knowledge about equine-assisted therapy for children. This study is being supervised by my advisor, Dr. Justin Perry, who is an Assistant Professor in the Department of Counseling, Administration, Supervision, and Adult Learning at CSU.

We are working on a study about therapeutic horseback riding for children with a variety of emotional and behavioral challenges (ED). The purpose of this study is to examine the outcomes of a 10-week therapeutic riding program on a group of participants who present with these challenges**.** I am interested in learning about how this program can help support the emotional, behavioral, and academic needs of children. To address these questions, we are asking participating families to complete an intake form, which is attached to this consent form. Based on the results of this intake form, your child, who is currently a student at Education Alternatives, will be eligible to participate in 10 weeks of therapeutic horseback riding at Fieldstone Farms with trained staff **at no cost**. Participants will be selected based on random drawing. If your child is not selected to participate, he or she will be put on a waiting list, and will be eligible to participate in the fall of 2011. If your child is selected to participate, he or she will start the program in March of 2011.

Prior to the start of the study, you and your child will given a series of assessments to help me evaluate the results of participating in the therapeutic riding program. In partnership with professional staff at Education Alternatives, these assessments will be sent home with your child for you to complete at your convenience. It should only take about 20 minutes to complete. Your child will be given the assessments during school hours at Education Alternatives under my supervision, and in collaboration with teachers and staff. This will have minimal interruption on their regular classroom time. In addition, your child's teacher will complete a similar assessment of your child. If at any time during the study, our assessments indicate that your child's safety may be of concern, teachers and staff will be notified immediately. The same assessments will also be provided one month following the completion of the study, and three months following the completion of the study.

Information that you, your child, and your child's teacher provide on the intake form and the assessments will be kept strictly confidential. Written reports of the results of the study will not identify individuals but will summarize results across all of the students.

Attached is a consent for release of information form that Education Alternatives uses with all of its students, including your child. By signing this release, you are giving your permission for me to speak with your child's treatment team at Education Alternatives in order to obtain information about diagnosis, frequency and duration of services, grades, attendance, and history of treatment. Any unchecked items will not be included. This information that you provide will be kept strictly confidential. Also attached is a Fieldstone Farm TRC Registration and Release of Information form. By signing these forms, you are requesting that your child be accepted to the Fieldstone Farm TRC program, have an understanding of the potential for injury, authorize emergency medical treatment if necessary, and allow photographs to be taken of your child for use by FFTRC. Finally, a Fieldstone Farm TRC Medical History/Physician Release form is attached which must be completed by a physician medically clearing your child to participate in the riding activities at Fieldstone Farm TRC. If you are unable to have a physician complete this form, you may give consent for your child to obtain a physical by a physician at Education Alternatives **at no cost to you**; however, you will need to complete the medical history portion of the form and return it to us.

Participation in this study is voluntary. You may withdraw your permission for your child to participate at any time without penalty. Children who participate may benefit from the study by experiencing improvements in their well-being, functioning, and learning. Possible risks of participation may include anxiety about interacting with and riding horses. The Fieldstone Farm staff members are trained to help reduce children's anxiety about riding horses and can explain to you in detail the activities involved, including level of risk. There is also the small possibility of physical injury; however, safety precautions will be taken to prevent injury, including appropriate safety head gear, supervision at all times, and compliance with rules and expectations. Parents and children can choose not to participate in any of the riding program's components that makes him or her feel uncomfortable during the course of the study, without penalty. If at any point your child does not want to continue, or appears uncomfortable, he/she can stop immediately, without penalty. In addition, your child may speak with his or her teacher, myself, or with a staff member.

If you and your child choose to participate in the study, your child will be given a $10.00 Wal-Mart gift card at least twice throughout the study; approximately halfway through the study and again at the end of the study.

Once the assessments have been completed by you, your child, and your child's teacher, all names will be removed. Number codes will be substituted for names. This consent form and the initial intake form will be kept in a locked cabinet at Cleveland State University. This information is strictly confidential. The release of information form will be kept in your child's chart at Education Alternatives. Progress notes that track your child's attendance and participation in the horseback riding program will also be kept at Education Alternatives.

If you have any questions now or at any time during the study, please contact me at 216-496-7670. You may also contact Dr. Justin Perry (216-687-5424) at Cleveland State University.

If you have any questions about your son/daughter's rights as a participant in this study, please feel free to contact the Cleveland State University Institutional Review Board at 216-687-3630.

Thank you for your time and consideration.

Sincerely,

Tira J. Stebbins, M.A.
PhD Candidate
Counseling Psychology Program
Cleveland State University

APPENDIX B

If you would like your child to participate in this study, please sign below and return this form to your Education Alternatives case manager.

I have read and understand this informed consent document.
I understand the purpose of this study and what my son or daughter will be asked to do.
I understand that my son/daughter may stop participation in this study at any time.
I understand that researchers will keep the information they receive confidential.
I understand that I should keep a copy of this informed document for my personal reference.
I understand that if I have any questions about my rights as a research subject I can contact the CSU Institutional Review Board at (216) 687-3630.
Please indicate below whether you want your child to participate.

There are two copies of this letter. Keep one copy for your records and return the other one to your case manager.

I give my consent for my son/daughter to participate in the Fieldstone Farms Study:

YES NO

I give my consent for my son/daughter to participate in a physical conducted by a physician at Education Alternatives.

YES NO

My child's name is (please print):

_____

Parent/Guardian Signature: _____ ***Date:*** _____

APPENDIX C

Assent to Participate in Fieldstone Farms Riding Study

Dear Student:

I am Tira Stebbins, a PhD Candidate in the PhD Program in Urban Education at Cleveland State University. I am asking you to help me with a study on therapeutic horseback riding. The purpose of the study is to see if therapeutic horseback riding helps children with their feelings, behavior, and success at school. Your parent or guardian has said it's OK for you to be part of this study, if you want. Dr. Justin Perry, who is an Assistant Professor in the Department of Counseling, Administration, Supervision, and Adult Learning at Cleveland State University, is supervising this study.

Participation in this study is voluntary, which means you do not have to take part if you don't want to. Nothing will happen to you if you decide not to participate.

If you agree to participate, you will be asked to complete a form. The form will ask you to rate yourself in different areas and your answers will be kept confidential (that means nobody will know what you say or write on the forms). The form will take you about 20 minutes to complete and you will be asked to complete this form a total of four times during the course of the study. Each time you complete the form, you will be given a $10.00 Wal-Mart gift card, which may be up to 3 times.

If you agree to participate, you are also agreeing to participate in a therapeutic horseback riding program if you are placed in that particular group. Of all the students who agree to participate in the study, approximately half will be randomly chosen for to the riding group and the other half will be assigned to the non-riding group. However, there may be opportunity in the future for everyone to participate in the riding program. If you agree to participate in the study and are assigned to the riding group, there is a possibility that you will feel nervous and there is a small potential for physical harm; however, all safety rules will be followed, including wearing a protective helmet. If at any time you would like to stop participating in the study, you may do so without any consequences.

If you are chosen for the riding group, you must have a physical completed by a doctor prior to participating in any riding activities. With your parent's permission, a physical will be completed at the CVS Minute Clinic.

Please read the following and sign below if you agree to participate.

I understand that:

- if I don't want to take the survey that's ok and I won't get into trouble
- anytime that I want to stop participating that's ok

- my name will not be known and my answers will be completely private

Signature: _____

Name: _____ (Please Print)

Date: _____

There are two copies of this letter. After signing them, keep one copy for your records and return the other one. Thank you in advance for your cooperation and support.

For further information regarding this research please contact Dr. Justin Perry at (216) 687-5424 or Ms. Tira Stebbins at (216) 496-7670.

If you have any questions about your rights as a research participant you may contact the Cleveland State University Institutional Review Board at (216) 687-3630.

APPENDIX D

Fieldstone Farm Therapeutic Riding Center

REGISTRATION AND RELEASE INFORMATION

Participant: _____ Date of Birth: _____ Age: _____

Street: _____

City: _____ County:_____ Zip Code: _____

Home Phone: _____ Work/Cell Phone:_____

School or Institution presently attending: _____

Primary Email (used for newsletters, billing, etc.): _____

- Participant is a (circle one): minor adult w/a legal guardian independent adult *(Only parents, legal guardians or independent adults may sign these forms.)*
- Please name any caregivers/phone numbers who may transport or be responsible for Participant: _____

  _____

  _____

For demographic data only, please indicate participant's ethnic background. Check any that apply:

Caucasian ❒ Asian ❒ Hispanic/Latino ❒ African American ❒ Native American ❒ Other ❒

Parent or Guardian Name: _____ Occupation: _____

Employer: _____ Work Phone: _____

Cell Phone: _____ Email: _____

Other Parent or Guardian Name: _____ Occupation: _____

Employer:_____ Work Phone: _____

Cell Phone: _____ Email: _____

Parent or Guardian Home Address (if different):_____

Home Phone: _____

Consent and Waiver

I hereby request that the Participant named above be accepted into the horseback riding and driving program operated by Fieldstone Farm Therapeutic Riding Center (TRC), an Ohio non-profit organization. I acknowledge that Fieldstone Farm TRC has fully explained to me the scope of the equine program, including the potential for injury which can occur from riding, driving or caring for horses. Because of the potential benefits of Fieldstone Farm TRC's program, I hereby waive any claim which I or the Participant may have against Fieldstone Farm TRC, its Trustees, employees or volunteers arising out of any injury which the Participant may sustain while involved in the mounted or unmounted equine program at Fieldstone Farm.

Date: _____ **Signature:** _____

Circle one: (Independent adult participant or parent or legal guardian)

PHOTO RELEASE

For valuable consideration, the receipt of which from Fieldstone Farm Therapeutic Riding Center is hereby acknowledged, the undersigned hereby grants to Fieldstone Farm permission to take, or have taken, still and moving photographs, videos and films including television pictures of myself or my daughter/son/ward (strike out inapplicable words), ___ _____ and consents and authorizes
(Participant name, please print)
Fieldstone Farm, its advertising agencies, news media, and any other persons involved with Fieldstone Farm and its programs, to use and reproduce the photographs, films, videos and pictures and to circulate and publicize the same by any means deemed appropriate by Fieldstone Farm, including without limitation newspapers, television media, brochures, pamphlets, instructional materials, books and clinical materials.

No inducements or promises have been made to me to secure my signature to this release other than the intention of Fieldstone Farm to use or cause to be used such photographs, films, videos and pictures for the primary purpose of promoting and aiding Fieldstone Farm and its programs.

___ I DO consent ___ I DO NOT consent

Date: _____ Signature:_____

Circle one: (Independent adult participant or parent or legal guardian)

AUTHORIZATION FOR EMERGENCY MEDICAL TREATMENT

Participant's Name: _____Phone: _____

Address: _____ City/Zip: _____

Emergency Contacts:

In case of emergency, please contact: _____ Phone: _____

Other Contact:_____ Phone: _____

Physician's Name: _____ Phone: _____

Preferred Medical Facility: _____

Health Insurance Co: _____

A COPY OF THE COMPLETED MEDICAL HISTORY SHOULD BE ATTACHED TO THIS FORM. Please note on the back of this form any medical considerations including allergies (bee stings, asthma, etc.), conditions requiring regular physician's care, and prescribed medications taken regularly.

AUTHORIZATION

The undersigned hereby grants to a staff member of Fieldstone Farm the authority to disclose and/or receive any information pertaining to the health care of the participant, while participating in Fieldstone Farm programs, and to make health care decisions on their behalf in the event of a medical emergency which renders them incapable of obtaining or disclosing such information. The term "health care" and "health care decisions" as used in this form shall have the meanings set forth in Ohio Rev. Code sections 1337.11 through 1337.17.

___ I DO consent ___ I DO NOT consent*

Date: _____ Signature:_____

Circle one: (Independent adult participant or parent or legal guardian)

***In the event that consent is not authorized and in order for services to be rendered, an authorized person must remain on the premises and demonstrate proof of authorization, to be kept on file.**

APPENDIX E

MEDICAL HISTORY

To be completed by independent rider/driver or parent/guardian

Name: _____ Date of Birth: _____

Address: _____

Male / Female

Name of Parent / Guardian: _____

Diagnosis: _____ Date of Onset: _____

Tetanus Shot: Yes _____ No _____ Date: _____ Height:_____

Weight:_____

Seizure Type: _____ Controlled: _____ Date of last

seizure:_____

Medications:

_____

_____

Mobility: (Circle each) Ambulatory-Yes/No Crutches-Yes/No Braces-Yes/No Wheelchair-Yes/No

Special precautions: _____

AREAS	*HAS Involvement*	*NO Involvement*	***COMMENTS***
Auditory			
Visual			
Speech			
Cardiac			
Circulatory (incl. hemophilia)			
Pulmonary			
Neurological			
Muscular			
Orthopedic (incl. spinal/ joint abnormal.)			
Allergies (incl. asthma)			
Learning Disability			
Mental Impairment			
Psychological Impair. (incl. behavioral)			
List any other chronic conditions or illnesses			
Other (ie: shunt, sensory loss, feeding tube, etc)			

*** * * FOR PERSONS WITH DOWN SYNDROME * * * PHYSICIAN MUST COMPLETE THE FOLLOWING* * ***

Cervical X-Ray for Atlantoaxial Instability: Positive ____ Negative ____

X-Ray Date _____

Subsequent annual clinical exam (by physician who is knowledgeable in AAI condition) reveals symptoms

of Atlantoaxial Instability?: Yes _____ No _____ Date of Exam _____

PHYSICIAN RELEASE

Given the above diagnosis and medical information, this person is not medically precluded from participation in therapeutic riding or carriage driving activities. I understand that Fieldstone Farm will weigh the medical information given against the existing precautions and contraindications. Therefore, I refer this person to Fieldstone Farm for ongoing evaluation to determine eligibility for participation.

Physician's Signature: _____ DATE: _____

Physician's Name (**please print**):_____ Phone: _____

Address/City/Zip: _____

APPENDIX F

Dear Teacher:

Hello, my name is Tira Stebbins, and I am a PhD Candidate in the PhD Program in Urban Education at Cleveland State University. I am asking for your participation in a research study that will include the therapeutic horseback riding program at Fieldstone Farms Therapeutic Riding Center, in partnership with Education Alternatives, and contribute to the general knowledge about equine-assisted therapy for children. This study is being supervised by my advisor, Dr. Justin Perry, who is an Assistant Professor in the Department of Counseling, Administration, Supervision, and Adult Learning at CSU.

We are working on a study about therapeutic horseback riding for children with a variety of emotional and behavioral challenges (ED). The purpose of this study is to examine the outcomes of a 10-week therapeutic riding program on a group of participants who present with these challenges**.** I am interested in learning about how this program can help support the emotional, behavioral, and academic needs of children. To address these questions, we are asking participating teachers to complete a behavior rating form called the Behavior Assessment Scale for Children, Second Edition, Teacher Rating Scale (BASC-2, TRS). It should only take about 20 minutes to complete and will ask you to rate children in your classroom who are participants in this study in a number of areas such as aggression, anxiety, and inattentiveness.

Information that you provide on the intake form and the assessments will be kept strictly confidential. Written reports of the results of the study will not identify individuals but will summarize results across all of the students.

By signing this consent form, you are agreeing to complete the BASC-2 TRS forms. Participation in this study is voluntary. You may withdraw your consent to participate at any time without penalty. There are no potential benefits to you for your participation and the only potential risk involves the time it takes to complete the form.

Once the BASC forms have been completed by you (as well as by the student and his/her parent), all names will be removed and number codes will be substituted for names. This consent form will be kept in a locked cabinet at Cleveland State University. This information is strictly confidential.

If you have any questions now or at any time during the study, please contact me at 216-496-7670. You may also contact Dr. Justin Perry (216-687-5424) at Cleveland State University.

If you have any questions about your son/daughter's rights as a participant in this study, please feel free to contact the Cleveland State University Institutional Review Board at 216-687-3630.

Thank you for your time and consideration.

Sincerely,

Tira J. Stebbins, M.A.
PhD Candidate
Counseling Psychology Program
Cleveland State University

If you would like to participate in this study, please sign below and return this form to your Education Alternatives supervisor.

I have read and understand this informed consent document.
I understand the purpose of this study and what I will be asked to do.
I understand that I may stop participation in this study at any time.
I understand that researchers will keep the information they receive confidential.
I understand that I should keep a copy of this informed document for my personal reference.
I understand that if I have any questions about my rights as a research subject I can contact the CSU Institutional Review Board at (216) 687-3630.
Please indicate below whether you want your child to participate.

There are two copies of this letter. Keep one copy for your records and return the other one to your supervisor.

I give my consent to participate in the Fieldstone Farms Study:

YES NO

Name (please print):

_____

Signature: _____ ***Date:*** _____

APPENDIX G

FIELDSTONE FARM
16497 Snyder Road • P.O. Box 23129 • Chagrin Falls, OH 44023
Phone: (440) 708-0013 • Fax: (440) 708-0029
fieldstonefarmtrc.com

April 4, 2012

To Whom it May Concern:

Tira Stebbins is authorized to use the name of Fieldstone Farm Therapeutic Riding Center, Fieldstone Farm TRC and / or Fieldstone Farm in her dissertation and any supporting written documentation or oral reports as she deems necessary.

Sincerely,

Teresa Morris

Teresa Morris, Program Director

Mission: Through a special partnership with horses, Fieldstone Farm Therapeutic Riding Center offers programs designed by professionals to foster personal growth and individual achievement for people with disabilities.