DISSERTATION

EXPLORING THE EFFICACY OF A SOCIAL-EMOTIONAL FOCUSED EQUINE-ASSISTED LEARNING PROGRAM FOR YOUTH IN A SCHOOL-BASED PARTNERSHIP

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ABSTRACT

EXPLORING THE EFFICACY OF A SOCIAL-EMOTIONAL FOCUSED EQUINE-ASSISTED LEARNING PROGRAM FOR YOUTH IN A SCHOOL-BASED PARTNERSHIP

The purpose of this dissertation is to explore the efficacy of a social-emotional learning (SEL) focused equine-assisted learning (EAL) program for youth who are not responding to school-wide efforts in SEL. The mental health crisis in youth is a leading cause for concern in public school systems across the nation and schools are uniquely positioned to provide additional support through community-based partnerships. We conducted a randomized controlled trial to determine the efficacy of an 8-week SEL-focused EAL program in improving social-emotional competencies, symptoms of depression and anxiety, and perceptions of self-efficacy in youth from the local school district.

Based on parent DESSA reports, we found that youth who participated in the program ($n = 15$) showed statistically significant improvements in social-emotional competencies ($p = .01$), compared to the waitlist-control group ($n = 14$), with a large effect size ($d = .995$). Teachers also completed the DESSA reports, and although we did not find statistically significant differences ($p = .616$), we did find slightly greater improvements in SEL scores for the experimental group compared to the waitlist-control group, from pre-test to post-test. Students completed pre- and post-tests for the PHQ-9 (symptoms of depression), the GAD-7 (symptoms of anxiety) and the GSES (perceptions of self-efficacy. We did not find statistically significant differences between groups in these areas.

However, we saw improvements in approximately half of the participants within the experimental group in all three categories. We also found that some students experienced setbacks in all three of these areas post-programming. In the future, it is important to explore the phenomenon of why certain students see improvements in anxiety and depression, while others have increased symptoms post-programming. We are happy to report that an 8-week SEL-focused EAL program is effective in improving SEL competencies for students who are not responding to SEL efforts within the classroom.

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DEDICATION

I dedicate this dissertation to my incredible husband (and best friend),

my four amazing and brilliant daughters,

and my precious mom and dad.

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CHAPTER ONE: INTRODUCTION

Statement of the Problem

The significance of the human-horse bond has a longstanding history rooted in both folklore and anthropology. From the legends of the Bedouin people housing their treasured Arabian horses in the family tents (Office of Saudi Arabia, 1997) to the more recent historical accounts of the horse's heroism in war (DiMarco, 2012), this human-horse bond has been a major contributor to the past advancement of humankind. As the relationship between humans and horses has evolved, so has the extent of this benefit. Over the past several decades, horses have become a model for human health, advancing research in broad and diverse areas such as depression, obesity, joint healing, and heart health (Boesen, et al., 2007; Fureix, et al., 2012; Johnson, et al., 2009; Muylle, et al., 2019). More recently, great attention has been given to the profound benefits to human health from direct incorporation of horses into human services.

Coincidingly, the mental health crisis in youth has been at the forefront of public health conversations for nearly two decades. Mental health challenges are the "leading cause of disability and poor life outcomes in young people" with anxiety and depression disorders amongst the most common psychiatric conditions affecting youth (HHS Press Office, 2021; Kalin, 2021). The literature is clear that there are effective programs for youth who are dealing with anxiety and depression, yet the majority are left untreated leading to dire consequences (Elsevier, 2021). A recent 20-year study linked adolescent depression to significant negative life outcomes, including "higher levels of adult anxiety and substance use disorders, worse health and social functioning, less financial and educational achievement, and increased criminality" (Elsevier, 2021, p.1; see also Copeland, et al, 2021).

To exacerbate the issue, the COVID-19 pandemic saw an exponential increase of anxiety and depression in youth impacted by the challenges of school closures, remote learning and social isolation. FAIR Health, a national, independent not-for-profit organization, explored the impacts of COVID-19 on youth by comparing private health care claims from 2019 – 2020 in its database of over 32 billion private healthcare claim records. This investigation uncovered startling findings for individuals ages 13 – 18 in the following areas (comparing April 2019 to April 2020): self-harm claims increased 99.83%, substance-use disorder claims increased 62.69%, overdose claims increased 119.31%, generalized anxiety disorder claims increased 93.6% and major depressive disorder claims increased 83.9% (FAIR Health, 2022). Additionally, the latest Center for Disease Control (CDC) data shows a nearly 57% increase in suicide rates for young people between the ages of 10 – 24 since 2019, with suicide now the second leading causes of death for youth ages 10 – 14 (CDC, 2021).

These startling findings prompted an immediate advisory issued on youth mental health crisis, from U.S. Surgeon General Dr. Vivek Murthy stating, "The Covid-19 pandemic further altered their experiences at home, school…, and the effect on their mental health has been devastating. The future wellbeing of our country depends on how we support and invest in the next generation" (HHS Press Office, 2021). To better understand the issue, according to the Children's Defense Fund (2021), each day in America:

- 5 children are killed by abuse or neglect.
- 59 children or teens are injured or killed by firearms.
- 126 children are arrested for violent crimes.
- 248 children are arrested for drug crimes.
- 1,683 babies are born into poverty and 773 into extreme poverty.
- 1,844 children are confirmed abused or neglected.
- 1,995 children are arrested.

- 2,956 high school students drop out.
- 14,640 public school students are suspended.

This overwhelming data places the well-being of youth at the top of priorities for educators, counselors, families, community leaders and government programs (Capuzzi & Gross, 2014). These staggering numbers have been consistently growing for nearly 2 decades, illustrating the great necessity for programs aimed to build-up youth despite their challenging life circumstances. Public schools feel the brunt of this crisis directly in the classrooms, with mental health conditions predicting lower grades and academic underachievement, as well as higher rates of disciplinary problems, poor social adjustment, substance abuse, and a three-fold increase in the risk of student suicide (Bearman et al., 2020). As previously mentioned, after nearly 18 months of school closures and social isolation, the increased anxiety and depression brought on by the pandemic is now infiltrating the classrooms and hallways more than ever before. This increase of violence, bullying, and student attrition has prompted Sharon Hoover, co-director of the National Center for School Mental health, to implore schools to "invest now in the well-being of our kids in a broad and comprehensive way " (Vestal, 2021). Although this charge is very recent, schools have been tackling this issue for some time with the integration of social-emotional learning (SEL) curriculum. SEL is one of the most universally adopted, evidence-based approaches to address student well-being (Cook et al., 2015), with competencies focused across five distinct domains: self-awareness, self-management, social awareness, relationship skills, and responsible decision making (CASEL, 2022).

Previous research has illustrated that schools are uniquely positioned to greatly impact the well-being of students through targeted programs due to the sheer amount of time students are in school (Weist, Evans, & Lever, 2003). Accordingly, backed by an abundance of research, many schools now integrate SEL concepts within the standard curriculum as a means to increase

SEL competencies (e.g., self-awareness, social awareness, etc.)(Corcoran et al., 2018; Eklund, et al., 2018). Furthermore, research has shown positive indirect effects of SEL integration due to the improvement of the school climate, including a decrease of behavioral disruptions, as well as a decrease in symptoms of depression and anxiety (Stalker et al., 2018). However, despite best efforts, there are some students, particularly those who have experienced trauma or adverse childhood conditions, who seem to struggle with building SEL competencies through school-wide efforts alone.

Accordingly, many schools have sought out community partnerships for an additional source of support. One partnership in particular, and the focus of this study, is a partnership with those who provide equine-assisted services. Equine-assisted services (EASs), which refers to various services in which professionals integrate horses to benefit people (Wood et al., 2021), have a long and rich history that predates the 20th century. The unique benefits of the horse's movement on the human body were even described by Hippocrates in his book *Natural Exercise* sometime between 460 and 370 BC (Riede, 1987). Now, the well-researched and documented benefits of integrating the horse's movement into licensed therapy practices (e.g., occupational therapy, physical therapy, speech-language pathology), have led to the Colorado General Assembly signing a house bill approving *Medicaid Reimbursement for Therapy Using Equine Movement* (2022; see also Gine-Garriga et al., 2014; Hardie et al., 2017; McDaniels & Wood, 2017; Wood & Fields, 2019). Alongside 37 other states that already provide Medicaid reimbursement for the use of equine movement in licensed therapies, Colorado law now recognizes this valuable intervention, increasing access to even more people who might benefit.

Alongside the reported physical benefits to humans, EASs targeting social and emotional well-being are also on the rise, with the integration of horses in non-therapeutic environments

gaining in popularity as ways to promote psychological health and social well-being (Haig & Skinner, 2022). Equine-assisted learning (EAL), in the broadest sense, is a form of experiential learning where specially trained or certified professionals incorporate horses in mounted and/or unmounted activities in an equine environment with intentional goals of improving academic skills, character development, and/or other relevant life skills (Wood et al., 2021). EAL in education engages students in learning processes that target specific needs of groups of students, and by partnering with schools or school systems, EAL professionals can integrate specific educational strategies that support individual education plans through specialized programming.

Specialized educational programs aimed to improve the social and emotional well-being of students is needed more than ever before. There is good evidence that fostering social competence in youth is a successful approach in preventing mental, emotional, and behavioral disorders in adulthood, with particular gains including positive development, a reduction in depression and anxiety, and greater emotional literacy (Cook et al., 2015; Pendry et al., 2014; Sancassiani et al., 2015). The mental health crisis in youth has been at the forefront of public health conversations for nearly two decades, and schools are uniquely positioned to provide broader access to social and emotional learning opportunities through key community partnerships. Furthermore, there is promising evidence that learning opportunities which integrate animals might provide added benefits to the learner, such as having a social catalyst effect (i.e., stimulating social behavior), a socio-positive effect (i.e., increasing trust and trustworthiness), and a positive effect on mood while also decreasing symptoms of depression (Beetz et al., 2012). Accordingly, EAL programs are gaining in popularity as a means to increase the social and emotional well-being of youth, and by partnering with schools, can provide specialized programming to students in an equine environment.

The reported benefits of EAL on social and emotional health are highly encouraging and increasingly growing. Recent studies reveal that youth who participate in EAL programs show improvements in self-regulation, self-awareness, and socialization skills, while also promoting emotional safety and altering one's perceptions of self-confidence, self-esteem, empathy and self-efficacy (Cagle-Hotlcamp, et al., 2019; Coffin, 2019; Pendry et al., 2014). However, despite most studies reporting positive effects, links between EAL participation and certain outcomes, such as levels of depression and self-esteem, are inconsistent, driving the need for more controlled studies (Ewing et al., 2007; see also Pendry et al., 2014). Furthermore, there have been very few studies conducted to investigate the efficacy of EAL school-based partnerships in improving social competence for their students, with none to date exploring multiple outcomes, such as social-emotional competencies reported by parents and teachers, along with anxiety and depression, self-efficacy (Ho et al., 2017; Norwood at al., 2021; Pendry et al., 2014).

Purpose of the Dissertation

As previously mentioned, there are factors, such as adverse childhood experiences, that might impact a student's ability to build competencies through school based SEL integration alone, possibly requiring a more targeted approach for these students. However, many schools are far too under-resourced, and/or do not have the staffing to adequately address extreme emotional and/or behavior challenges in students, and those who do have specialized training, such as school psychologists and counselors, often do not have the resources to initiate dedicated programming for smaller populations of students (Eiraldi et al., 2015). Based on these realities, there is a considerable push for community youth service providers to join forces with schools in order to augment the work of school staff and provide access to more targeted programs (Bearman et al., 2020). With the stakes so high, for both the future of youth and the public school

system, it is crucial that community partnerships, such as the SEL-focused EAL program within this study, are further explored. This study, therefore, was intended to investigate value of an SEL-focused EAL program before promoting its benefits to school-based partnerships.

Hence, the purpose of this study was to conduct a randomized controlled trial to determine the efficacy of an 8-week equine-assisted social emotional learning program in improving the social and emotional competencies to a group of 7^{th} – 8^{th} grade students from the school district who have a history of trauma and/or adverse childhood experiences. Additionally, this study evaluated the effectiveness of this program on symptoms of depression and anxiety and impacts on self-efficacy. As previously mentioned, few studies have shown the benefits of EAL on building social competence, and this study was able to provide rigorous data to the growing body of research in this field.

Research Questions

This study took place at a nationally recognized certified therapeutic riding center with participation from six schools from a local school district. Three schools participated in a fall cohort, and three schools served as a waitlist control in the fall, and then participated in the program the following spring. This study sought to investigate the following:

1. Do students who participate in the 8-week SEL-focused EAL program have higher levels of social and emotional competencies at completion than those who did not participate in the program?
2. In what ways does participation in the 8-week SEL-focused EAL program impact participant self-efficacy and symptoms of anxiety and depression as compared to the control group?

Accordingly, we examined whether or not students who participated in the 8-week SEL-focused EAL program increased their levels of SEL competencies at post-test than those assigned to the waitlist control group. We also investigated whether or not participation increased self-efficacy and decreased symptoms of depression and anxiety from pre-test to post-test, as well as showed increased self-efficacy and decreased symptoms of anxiety and depression at posttest compared to those assigned to the waitlist control condition. Overall, this study provided a rigorous evaluation of the efficacy of an SEL-focused EAL program that should be considered in future research, and while considering its value in school-based partnerships.

Significance

In the broadest sense, this research was designed to provide crucial information and knowledge regarding the impacts of EAL on the well-being of youth. The current scholarly work supporting its benefit is in its infancy, while the most telling evidence remains anecdotal. To substantiate this evidence, we aimed to report the specific impacts of EAL on building social and emotional competencies (e.g., social skills, relationship skills, responsible decision-making) in youth. Additionally, in the first of its kind, we aimed to report the specific impacts of EAL on symptoms of depression and anxiety, as well as improvements in self-efficacy. The findings from this study provided important data to the growing body of work supporting the impacts of EAL on the well-being of youth.

In addition, these findings provided major benefits for several key stakeholders. First and foremost, these findings will highly benefit youth. As previously mentioned, the need for targeted programs that improve the well-being of youth was needed more than ever before. With strong anecdotal evidence supporting the integration of horses in experiential learning, the students in this study benefited from this interaction and establishing specific benefits should

ensure that more students have access to this type of programming in the future. Secondly, these findings will highly benefit schools. Providing SEL programming through a school-based partnership enhances the school's ability to address concerns of student well-being. Furthermore, these targeted programs equip students with tools that can impact individual school engagement, while simultaneously improving school culture. Lastly, these findings greatly impact the EAL industry by providing rigorous data within this field. We aimed to report the efficacy of EAL on several outcomes, thereby providing strong evidence supporting its potential benefits and limitations when implementing future EAL programs for youth.

Limitations

This study had several limitations that should be considered before developing future studies. First, this study did not evaluate the program's duration on efficacy (i.e., 8-weeks versus 12-weeks versus 15-weeks, etc.). It is quite possible that longer programming might be needed to see greater changes in symptoms of anxiety and depression. Data from the American Psychology Association shows a growing number of specific psychological treatments of 12 – 16 weekly sessions that have been shown to result in significant improvements, and that at least 50 percent of clients require 15 – 20 therapy sessions to recover and may need 20 – 30 sessions over 6 months to achieve symptom remission (APA, 2017). Although SEL-focused EAL is not considered a psychological treatment, findings in mental health literature can serve as a model in establishing the required duration of certain programming when specifically attempting to improve the participants' mental health.

Secondly, we were unable to control for potential biases that may have arisen during data collection. Although we saw a significant difference in the parent DESSA (see results) between the experimental and wait-list control groups, this may have been due to the parents' confidence

in the programming, as parents were not blinded to the study. On the other hand, we did not see significant differences in the teacher DESSA (see results) between the experimental group and the wait-list control groups, with both groups showing improvement in competencies. Although teachers were blinded to the study, they were also aware of SEL programming integrated into the school's curriculum, which again, confidence in school-based efforts alone could have led to increased scores. Furthermore, teachers had only had students in the classroom for several weeks before completing the first round of DESSA reports, which may have not been long enough to establish a true baseline.

Finally, we were unable to include any qualitative data in our analysis. Previous research has shown the valuable addition of interviews and focus groups on the perceived benefits of human-animal interactions for the participants. We might be missing key findings in other outcomes that we did not measure and could have perhaps captured through qualitative data. We suggest including a qualitative component in future research, specifically when seeking to evaluate the potential unknown benefits of human-animal interactions on the participant. Perhaps most significantly to the field of EAL, and one question I plan to investigate in the future, is what, if anything, makes the horse unique and beneficial to experiential learning. Understanding this question is vital for the future of EAL work because it can solidify the horse as an irreplicable component for programs of this kind. Despite these limitations, findings within this study serve as a gateway for future important work in this field.

Chapter Two: Literature Review

Introduction

The purpose of this literature review is two-fold. First, we will explore several informing theories that each serve to provide a conceptual framework for this study. The first, and perhaps most significant, is the Collaborative to Advance Social and Emotional Learning (CASEL) framework of social and emotional learning (SEL) competencies. Developed by a large body of scholarly work, the CASEL framework serves to build resiliency in students by providing guidance across 5 key competencies: self-awareness, social-awareness, self-management, relationship skills and responsible decision making. We will explore the CASEL framework in great detail, including the history of SEL competencies in schools, the guiding framework, and the current research. We will also briefly explore the current research on experiential learning and human-animal interactions, as they are both key components to this study.

Next, we will dive deep into the current research on equine-assisted learning. I will briefly define several key terms and practices, discuss the limitations within current EAL research, then explore current studies in EAL that specifically relate to this study. Throughout this literature review, I will draw connections between the theoretical framework and how it will inform our study, as well as compare this study to the current research and discuss how this study will uniquely serve this field of inquiry.

Theoretical Framework (SEL)

Without the means of individualized care, historically, schools would utilize multiple programs to promote mental wellness and combat behavioral concerns. These interventions included programs to improve decision making skills and social interactions, as well as target categories of problem behaviors such as violence, drug use, or risky sexual behaviors (Payton et

al., 2000). Despite the best of intentions, this conglomerated approach often had major issues in practice. First, simultaneous programming created resource issues in both instructional time and manpower, decreasing the sustainability of any given program (Adelman & Taylor, 2000). Secondly, the variety in programs often lacked support from both within the classroom and at home, prohibiting students from the chance to successfully build on what they had learned (Adelman & Taylor, 2000).

These major deficits drove the need for a more comprehensive and coordinated approach for building positive skills in students, while simultaneously providing tools for preventing risky behaviors. Because problem behaviors often happen in clusters and share many common factors it was evident that they could be addressed by similar strategies (Payton et al., 2000). It was during this same time social and emotional learning (SEL) was making its mark in education as a distinct method for teaching the necessary 'soft skills' for individual growth and development. Previous literature had suggested that non-cognitive skills are just as important as cognitive skills for positive life outcomes, thus SEL emerged to connect the development of social and emotional competencies specifically to school and life success (Zins et al, 2020) At its core, SEL programs were designed to increase a student's ability to understand and manage the social and emotional aspects of life in ways that promote successful accomplishments, such as "learning, forming relationships, solving everyday problems, and adapting to complex demands of growth and development" (Kress, p.4, 2004). The integration of building these soft skills into standardized curriculum seemed to be a promising way to positively impact a student's well-being.

To address the need for more theory-driven and evidence-based programming, the Collaborative to Advance Social and Emotional Learning (CASEL) developed a framework of

social and emotional learning (SEL) competencies and identified program features essential for success (Payton et al., 2000). These critical features emphasize curriculum design (e.g., clear program objectives and teaching activities), coordination with larger systems (e.g., promoting the reinforcement and extension of SEL beyond the classroom), educator preparation and support (e.g., formal training and on-going assistance), and program evaluation (e.g., evidence of positive affects to SEL-related student outcomes). The need for this study was informed by two areas of critical SEL program features: coordination with larger systems and program evaluation. By partnering with an SEL-focused EAL program, schools are able to provide opportunities for students to experience SEL concepts beyond the classroom through experiential learning, a notion that is key to building competencies. This study sought to provide good evidence of the benefits of this partnership, as well as evidence to support the SEL-focused EAL program design.

Although program features are crucial, the benefits of SEL are central to this framework. From its inception, a large body of scholarly work has informed the CASEL framework (2007), which now fosters knowledge, skills, and attitudes across five content areas: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making. Results from a meta-analysis by Durlak et al. (2011) of 213 school-based, universal SEL programs involving more than 270,000 students (K-12), revealed that students in SEL programs demonstrated significant improvements across psychological, behavioral and educational domains. Specifically, SEL programs improved classroom attitudes about self, others, and the school; increased prosocial behaviors while reducing misconduct and internalizing problems; and increased testing scores and grades by an average of 11 percentile points (Durlak et al., 2011; Yang & Ma, 2020). Furthermore, fostering the development of SEL competencies in youth

provides a foundation that can allow for a healthier and more positive adulthood. Evidence has indicated that long term mastery of SEL competencies is associated with a shift from being "predominantly controlled by external factors" to "acting in accord with internalized beliefs and values, caring and concern for others, making good decisions, and taking responsibility for one's choices and behaviors" (Durlak et al., 2011, p. 406; see also Bear & Watkins, 2006). The SEL-focused EAL program in this study was informed and developed using the CASEL framework by defining and integrating the following five competencies.

Self-Awareness

According to CASEL (2017), self-awareness is defined as the ability to "understand one's own emotions, thoughts, and values and how they influence behavior across contexts". An important aspect of self-awareness is one's realistic understanding of their own strengths and limitations bolstered with a sense of confidence and purpose. In schools, students are often required to complete tasks, both independently and in groups, which necessitate an understanding of one's own emotional, social, and academic strengths and weaknesses in order to be successful. The ability to identify limitations, paired with the desire for self-improvement, encourages students to seek help when needed, while simultaneously acknowledging what they already know. CASEL's competency of self-awareness includes the ability to integrate personal and social identities in the academic setting (by identifying assets and biases) and developing interests and a sense of purpose through a growth mindset. In EAL, self-awareness is further emphasized with the anecdotal evidence that horses are extremely sensitive to emotional nuances. As a prey animal, they might avoid or deflect advancements made by a student who is in a troubled emotional state. Identifying and understanding one's own thoughts and emotions are essential for a positive human-horse interaction, as well as for successfully completing the

designated task with the horse. This EAL experience with self-awareness can transfer to other experiences, including interactions with peers, teachers and families.

Self-Management

CASEL (2017) defines self-management as the ability to "manage one's emotions, thoughts, and behaviors effectively in different situations and to achieve goals and aspirations". Building on the competency of self-awareness, self-management includes the capacity to effectively manage stress and delay gratification while also feeling motivated to accomplish personal and collective goals. In schools, students are often required to regulate their emotions, stay focused, manage their time and adapt to change. Self-management allows students to properly handle the strong emotions that are felt throughout the day, permitting for a more positive response to stressful situations as they arise. CASEL's competency of self-management includes the ability to identify and use stress management strategies and exhibit self-discipline and self-motivation, while also demonstrating the courage to take initiative through both personal and collective agency. In EAL, self-management is at the core of achieving goals within the horse interaction. The student must learn to control their own emotions, practice patience, stay focused on the task with the horse, and exercise positive responses to stressful situations. The ability to self-manage plays a large role in maintaining a calm and cooperative horse during designated activities. The importance of self-management with horse interactions can transfer over to everyday life, with friends, teachers and families.

Social Awareness

CASEL (2017) defines social awareness as the ability to "understand the perspectives of and empathize with others, including those from diverse backgrounds, cultures, and contexts". A significant component of this competency includes the "capacities to feel compassion for others,

understand broader historical and social norms for behavior in different settings, and recognize family, school and community resources and supports". In schools, students are expected to engage positively and productively with their peers. Social awareness allows students to be more cooperative and accepting of all students within the classroom, and better demonstrate empathy and perspective-taking, leading to more meaningful social connections. CASEL's competency of social awareness includes the ability to understand and express gratitude, as well as identify diverse social norms, including unjust ones, and the influences of organizations and systems on behavior. In EAL, students must gain an understanding of the emotions of the horse. These behavioral indicators should inform the way students interact, with instant changes if the horse is scared or confused. When the horse is uncooperative, students learn to diagnose the behavior rather than simply get frustrated. This learning experience with the horse can transfer to building awareness for other people in their daily interactions.

Relationship Skills

According to CASEL (2017), relationship skills are the abilities to "establish and maintain healthy and supportive relationships and to effectively navigate settings with diverse individuals and groups". Building on social awareness, these skills include the abilities to clearly communicate and actively listen, constructively problem solve and negotiate conflict, and offer or seek help when needed. In schools, students are expected to navigate settings with different social and cultural demands while engaging in schoolwork in deeper and more meaningful ways. Students with strong relationship skills are more accepting of their peers, develop stronger friendships and have more desire to participate in extra school activities. CASEL's competency of relationship skills includes the ability to develop positive relationships through teamwork and collaborative problem-solving, while also resisting to negative social pressure and standing up

for the rights of others. In EAL students can refine these skills by building a strong relationship with the horse, one that is fostered through communication and teamwork. Furthermore, students within an EAL program often work together in small groups to complete a task or reflect on the day's events. Students learn quickly that if they shut down communication with the horse, it will not be responsive or cooperative. Furthermore, they will learn that aggressive, dominating, or even timid approaches, could lead to fear responses from the horse. These realities and experiences can also be transferred to human interactions, and the importance of building strong relationships with the people in their lives.

Responsible Decision Making

CASEL (2017) defines responsible decision making as the ability to "make caring and constructive choices about personal behavior and social interactions across diverse situations". Digging deeper into both self and social awareness, this competency includes the ability to incorporate safety concerns and ethical standards for self and others, and to evaluate the consequences and benefits of behavior on personal, social, and collective well-being. In schools, students are expected to exercise good judgement, learn for previous experiences, and be able to evaluate their own personal decisions. Responsible decision making allows for less conflict, more positive interactions, and increased prosocial behaviors. This competency is the key to changing school cultures, in that students will demonstrate curiosity and open-mindedness, identify solutions for both personal and social problems, anticipate and evaluate the consequences of actions, and reflect on one's role to promote personal, family and community well-being. In EAL, responsible decision making is practiced through regular attendance, consistent engagement and compliance to the rules and expectations sanctioned by the EAL provider. Missing EAL sessions will prevent moving through the tasks at the same rate as their

peers, as well as compromise their ability to build a relationship with the horse. Non-compliance of rules (e.g., refusing to wear a safety helmet, or behave safely and humanely when interacting with the horse) will result in sitting out of programming. Additionally, students can learn from possible mistakes while interacting with the horse and make better decisions in future interactions. Through an EAL program, students can learn the benefits of making good decisions, as well as the consequences for making wrong ones, which can then be transferred to everyday life experiences at school and at home.

With these key competencies identified, it is important to be able to evaluate a student's baseline in these core competencies, as well as their growth from participating in an SEL program, informed by the CASEL framework. The Devereux Student Strengths Assessment (DESSA) was developed to specifically measure social and emotional competencies in children. This validated and reliable 72-item, standardized rating scale can be completed by parents and teachers, and directly aligns to the CASEL framework (LeBuffe, et al., 2018). This study utilized the DESSA survey, completed by both teachers and parents, to investigate the efficacy of the SEL-focused EAL program informed by the CASEL framework. With this data, we were able to analyze for differences (i.e., in post-test scores between students participating in the EAL program and the waitlist control condition) and improvements (i.e., pre-test post-test data from students participating in the EAL program) amongst CASEL's five competencies.

Conceptual Framework (EAL)

For most students, SEL programs integrated within the school's curriculum are effective in building the CASEL's five competencies. However, as previously mentioned, for some students, knowledge and exposure of concepts are not always adequate in providing lasting and meaningful benefits to the learner, particularly when introspection and application are key to

understanding. In these cases, experiential learning programs may provide better access to building these skills.

Experiential learning is a theory and methodology that defines learning as "the process whereby knowledge is created through transformation of experience. Knowledge results from the combination of grasping and transforming experiences" (Kolb, 1984, p. 41). When concepts are imbedded in meaningful experiences, students can be guided by "active engagement and self-guided learning in a purposeful, immersive experience, as well as reflection and sense-making about that experience in order to transform it into knowledge that can be applied in subsequent experiences and contexts" (Lovett, 2020, p. 2). Research has shown that learning through experience has significant added value for students including "gains in deep learning, practical competence, persistence rates, civic engagement, appreciation of diversity, professional networks, and many others" (Corker & Porter, 2013, pg. 1; see also Kuh and O'Donnell, 2013; Hesser, 2013).

Experiential learning, as a framework for educating youth, stimulates inquiry and skills in the process of knowledge getting, emphasizing that knowing is a process, not a product, with the added benefit of consequential engagement with the environment (Bruner, 1966). This active engagement involves the 'whole' person, through "thoughts, feelings and physical activity" while also recognizing the 'whole environment', "both internally and externally", and actively engaging with the experiences of others (Beard & Wilson, 2013). Accordingly, it has been found that experiential learning programs have a higher potential to improve empathy, prosocial behavior and well-being in youth, when compared to non-experiential learning programs (Chan et al., 2021). This notion might be especially significant for youth who have faced adverse childhood experiences, and/or are living with trauma, depression and/or anxiety, and are not

responding to school-based, standardized efforts for building SEL competencies. Experiential learning might be key to building SEL competencies for these students by allowing them to connect the particular learning experience to all prior experiences, both good and bad, and through intentional reflection they can begin to make sense of all experiences that are to come.

Experiential learning that includes animals may have an added benefit to the student. The inclusion of animals in youth education has greatly increased in recent years due to the reported benefits of animal-assisted interventions (AAI) on the health and wellbeing of students (Brelsford, et. al, 2017). AAI, as defined by the International Association of Human-Animal Interaction Organization, is a "goal-oriented and structured intervention that intentionally includes or incorporates animals in health, education and human service…for the purpose of therapeutic gains in humans" (2018). Alongside the diverse data that reports positive outcomes from various animal-assisted interventions, which include but are not limited to improvements in self-control and trust in youth with severe physical and sexual trauma, reduction of pain and anxiety for hospitalized children, improved social functioning in children with autism, and improved symptoms of behavior disorders (Bachi et al., 2012; Barker et al., 2015; Bass et al., 2009; Dietz et al., 2012; Martin & Farnum, 2012), it has also been found that the relationships and experiences participants build with horses contribute to psychological gains, including empathy, sense of purpose, autonomy and self-efficacy (Burgon, 2011, p. 177). Although there is promising scholarly work on the benefits of human-animal interactions, there is still a great need to solidify EAL as an effective experiential learning tool for SEL programming. This study was able to provide more evidence for the efficacy of building SEL competencies through an SEL program that incorporates human-equine interactions.

Review of the Equine-Assisted Learning (EAL) Literature

Given the benefits of SEL programming, the impacts of experiential learning, and the potential value of the human-animal interaction, incorporating horses as an experiential learning method to increase social and emotional competencies for youth in need of specialized programming is worth further exploration. This literature review aims to provide an in depth look into the present scholarly work that exists in equine-assisted learning (EAL) programs that exist to develop social and emotional competencies in youth. Furthermore, it aims to contribute insight into the potential gaps that might exist and discuss how this proposed study might serve to fill some of those gaps in the research.

However, first, it is important to review some key terms. Due to the fast-growing practice of incorporating horses into human health, it is not surprising that this area of research has lacked uniformed terminology to describe the various practices. This has led to a variety of labels and descriptions that create problems in evaluating and replicating any given program and that often unintentionally misrepresent a program as an intervention (e.g., equine-assisted "therapy" that does not include a licensed therapist). Due to this major limitation, a consensus-building process was initiated in 2018 in order to establish optimal terminology for services that incorporate horses to benefit people (Wood et al., 2021). According to the now published consensus document from Wood et al., equine-assisted services (EASs) refer to "multiple services in which professionals incorporate horses and other equines to benefit people". This optimal unifying term encompasses any and all types of services from the following three categories: Therapy, Horsemanship, and Learning.

Therapy

The consensus document from Wood et al. (2021) recommends a therapy-first language, which can include five distinct categories: counseling, occupational therapy, physical therapy, psychotherapy, and speech-language pathology. Within each of these services, licensed therapy professionals incorporate horses within treatments or interventions to improve human health (e.g., body function, speech, etc.). Therapy-first language allows for equine-related descriptors that offer a more precise description of the therapy and should be related to the objectives within the treatment. For example, an occupational therapist describing treatment would say 'occupational therapy in an equine environment', or a physical therapist might say 'physical therapy using equine movement'. This therapy-first language keeps the specialization at the forefront, clearly distinguishing itself from other types of therapy interventions.

Horsemanship

Under the EASs umbrella, Horsemanship refers to the broad area of four distinct non-therapy services (adapted from traditional equine disciplines): adaptive equestrian sport, adaptive riding (aka therapeutic riding), driving, and interactive vaulting (Wood et al., 2021). Certified equine professionals provide these services to individuals with diverse needs, including but not limited to those who may experience restricted participation in everyday life. The goals of Horsemanship are skill-based goals, whether that is to improve riding skills, driving skills or vaulting skills, participants can build confidence with the horse through athletic development.

Equine-Assisted Learning (EAL)

Also, under the EASs umbrella, equine-assisted learning (EAL) refers to a nontherapy service in which certified equine professionals "leverage experiential learning activities involving interactions with horses, mounted and unmounted activities, and the equine

environment" to connect all ages of people to educational activities that emphasize "academic skills, character development, and the promotion of relevant life skills, such as problem-solving and critical thinking skills" (Wood et al., 2021). Although therapy services and horsemanship are not relevant to this proposed study, it is important to understand that the current published research might be describing an EAL program while labeled as a therapy, and vice versa. Therefore, it is important to be able to distinguish between therapy services, horsemanship services, and equine-assisted learning. Furthermore, the proposed study has identified the EAL service in review as "a SEL-focused EAL program" to highlight the added SEL curriculum that is embedded within this particular EAL program, allowing for a distinction in the type of education the participants should be expected to receive. It is important to note that the certified equine professional can determine (and even develop) the EAL curriculum. As previously mentioned, the EAL provider for the proposed study developed curriculum that was informed by the CASEL framework.

EAL Scoping Review

In a scoping review of EASs conducted in 2022, Haig & Skinner systematically explored the literature to investigate the current evidence supporting the use of EAL for youth. This preliminary review of the literature was immediately met with challenges for the authors. First, there was not consistent language or terminology characterizing the program-type nor the population of youth participating, an inconsistency also noted by other authors exploring EASs (Haig & Skinner, 2021; see also Lentini & Knox, 2009; Stern & Hansen, 2019; Wood et al., 2021). This led to the authors including literature that described common themes in EAL, but with programs titled, 'equine-assisted therapy', 'equine-facilitated therapy', 'equine-facilitated mental health', and so on. Second, there is not yet a standard practice for EAL services, meaning

that each program is unique and distinct within its methods of delivery and curriculum, making comparisons rather challenging. The authors selected programs which they believe best represented EAL, and therefore elected to only include programs that had a specific emphasis on group work and unmounted work (opposed to mounted work). However, as noted earlier, EAL programs can include mounted activities, leaving a potential gap within this scoping review. In addition to the specific emphasis on the types of activities, authors also required that the aims of the evaluated programs needed to emphasize "a bond between the horse and the participant that creates an opportunity for experiential learning through structured guided activities involving direct interaction with a horse" (Haig & Skinner, 2021, pg. 3). Due to the lack of research in this specific field, authors elected to include grey literature within the review to get the best sense of what has and has not been published.

Despite the potential missing elements, the results of Haig & Skinner's review are quite promising. Twenty-seven studies were included in the final analysis, with Haig & Skinner dividing the targeted populations into four subgroups: at-risk youth, youth with mental health disorders and/or learning disabilities, youth survivors of trauma/abuse, and at-risk Indigenous youth. Youth who are at-risk for various adverse outcomes were the most commonly identified target group among the studies. Of the 12 studies that provided interventions for youth at-risk, only two studies did not report positive changes and/or did not report statistically significant changes. Although lack of participants was stated as the issue, it is interesting to note that one study found an increase in maladjustment following the intervention for youth on probation, where it was theorized that the participants lacked adequate support following the dealing with traumatic memories during the EAL sessions (Haig & Skinner, 2021; see also Idzerda, 2009). This key detail is crucial when considering an EAL program for youth who may have adverse

childhood experiences and/or trauma. A key component of both SEL and experiential learning are those moments of reflection, which can encompass both past disturbances and future concerns. Without the benefit of a licensed mental health counselor, EAL programs might struggle to fully meet the needs of a student who is mentally suffering as a result of dealing with traumatic memories during sessions. To address this issue, our proposed study will include a district school counselor who will accompany the participants each week to provide therapeutic intervention for any student in need of additional support.

The remaining 10 studies of EAL for youth who are at-risk found positive findings with common themes including outcomes related to resilience and coping. According to Haig & Skinner, several studies found a decrease in reported levels of depression, while several also found improved confidence, self-esteem and self-efficacy, as well as increased coping and life skills and improvements in communication and social skills. Haig & Skinner also noted a common theme expressing the appropriateness of EAL as a way to engage with youth, most particularly for those who have not had success with more traditional interventions, such as talk therapy (Haig & Skinner, 2021).

Five studies in Haig & Skinner's scoping review were focused on youth with mental health disorders or learning disabilities. The unifying theme of these interventions was to improve mental health and learning. Three of the five studies found overall positive improvements, including reduced negative emotions, such as feelings of anger, anxiety and depression, a decrease in hyperactivity and conduct issues, and an increase in positive moods. It was also noted that participants in one study preferred EAL to therapeutic treatments specifically because of the human-horse bond. The remaining two studies in this subgroup did not find evidence of improvements overall, however the researchers hypothesized that external factors,

such as instability in the participants' lives, lower IQ scores, and response bias to the questionnaires, may have impacted the results (Haig & Skinner, 2021; see also Ewing et al., 2007).

Six studies in the analysis were focused on youth survivors of trauma or abuse, and although the types of traumas varied, as well as the methods of intervention, all initiatives reported significant positive associations between EAL, and outcomes assessed. These summative findings included a decrease in depression, anxiety, PTSD symptoms, somatosensory complaints, and behavior dysregulation; and in increase in global functioning scores and human-animal bonding (Haig & Skinner, 2021). Furthermore, two studies found EAL to have similar or greater effect than the more traditional types of treatments used in their respective control groups (Haig & Skinner, 2021; see also Kemp et al., 2014; Schultz et al., 2007).

The final four studies focused on the benefits of EAL for Indigenous youth. While this subpopulation had varying degrees of needs, including one study's focus on substance misuse, versus another study focused on grief, loss or trauma, all of these studies adapted EAL methods to Indigenous culture and needs, with all four engaging with local Indigenous communities at the center of the initiatives (Haig & Skinner, 2021). Therefore, cultural safety and connection to culture were common themes identified as important to Indigenous communities. All four studies found positive outcomes in those domains; and also in social functioning, social adjustment, social well-being and connection. It was also noted that the inclusion of horses improved the well-being of participants because of the horses' prominence in Indigenous culture.

Haig and Skinner also concluded their review with several qualitative findings. First, they postulate that the horse served as a powerful therapist. Horses do not respond well to aggressive handling, which forced participants to seek better ways of communicating, including being more

aware of nonverbal body language. The human-horse partnership required participants to be assertive without being aggressive, and some participants had to overcome feelings of fear. Many reported that horses made them feel safe and had a calming presence, as well as provided honest feedback by mirroring the feelings of the participants. Across the studies, youth overwhelmingly enjoyed the sessions, and some were angered because the sessions were over. Many participants in various programs felt more engaged, enjoyed working and spending time with the horses, and enjoyed being outside with animals, opposed to in school or in therapy sessions. Several studies specifically illustrated the bond between participants and the horses by using the Human Animal Bond Scale, while others also noted qualitatively that participants were able to develop a close bond with the horses, which resembled features of a safe attachment figure. Many of these positive remarks reflect growth in competencies outlined in the CASEL framework. For example, participants who reported improvements regulating their own emotions, as well as being able to identify the emotions of the horse reflected understanding in both self-awareness and social awareness. Furthermore, feelings of engagement, enjoyment, safety and developing bonds are all distinctly related to relationship skills and could be signs of increases competence in this area.

The results of Haig and Skinner's review indicate that EAL is a promising service for a variety of conditions and circumstances that affect youth. Furthermore, preliminary evidence suggests that EAL, for some, may be preferable to therapeutic interventions, such as talk therapy, especially for those who struggle to connect with people. Finally, the human-animal bond seems to play a heavy role in the popularity of EAL and could be the key to improved social competencies across the studies. These preliminary findings are particularly important for the proposed study for several reasons. First, it provided promising evidence that EAL may increase

social competencies for youth who have experienced adverse childhood experiences and/or trauma. Secondly, it also provided promising evidence that EAL may decrease symptoms of depression, while also increasing self-efficacy. These findings were across several studies, which were also not evaluated for efficacy. Our study hopes to combine possible outcomes under one project (i.e., SEL competencies, anxiety, depression, self-efficacy, and impacts on attendance and behavioral referrals in school), through a rigorous study design that will also evaluate efficacy. Although Haig and Skinner's review provided a clear picture of the status of unmounted and group work in EAL research prior to 2020, it is important to take a deeper look at the most recently published studies to better evaluate and compare current methods.

In 2020, Pelyva et al. investigated how EAL affects the prosocial behavior of adolescents. As previously mentioned, the human-animal bond seems to play a role in fostering social competencies in youth, and this team of researchers was interested in whether EAL may serve to protect youth from psychosocial stressors they face in everyday lives. Using a cross-sectional study with a control group, Pelyva et al. sought to determine the effects of the time spent with horses on healthy 14–18-year-old students in a school-based program. This four-year "horse groom training program" had students feed, groom, clean stables and learn groundwork and riding skills for approximately 2 day per week, as part of the curriculum within the school. The control group consisted of students from the same schools whose vocational focus was on non-horse related industries, such as gardening, animal husbandry, meat processing, etc.

The researchers used the 'Strengths and Difficulties Questionnaire' (SDQ) to evaluate the participants' social and emotional competencies, which consists of 25 statements and measures the self-reported levels of emotional difficulties, behavioral difficulties, hyperactivity, peer-relations, and prosocial skills (Pelyva et al., 2020). Participants also completed a general inquiry

form, which included previous experiences and current exposure to horses and/or pets. The total population of participants (n=525) was made up equine students (ES = treatment group) who elected to participate in the EAL program, and other students (OS = control group) who did not elect to participate in the EAL program.

The authors found that the strongest predictor of SDQ scores was group membership in the ES or OS group. The ES students had "significantly fewer emotional and behavioral problems than average, and their prosocial behavior was significantly better" (Pelyva, et al., 2020, pg. 6). The authors also found that the chances of having behavioral or emotional difficulties was four times higher among the OS group, compared to the ES group, which was especially true for males, suggesting that EAL may have a protective role for youth. Comparing the different age groups, upon admission into the program the ES 14 – 16-year-olds, having previous equine interactions before acceptance, had fewer behavior problems than the OS 14 – 16-year-olds, indicating that the human-horse interactions may contribute to behavioral development. Additionally, comparing both age groups within ES and OS respectively (14 – 16-year-olds < 2 years in program; 16 – 18- year-olds > 2 years in program) the rate of decline of behavior problems was more significant among the ES students, providing evidence that EAL may foster positive behavior changes. The authors were able to establish that youth who participated in the EAL program had "fewer behavior problems and stronger prosocial skills than their peers without such engagements", and that even without therapeutic aims, the presence of horses in an educational setting may have increased benefits for youth development (Pelyva et al., 2020, pg. 9).

Pelyva et al.'s study provides promising evidence supporting the benefits of community based EAL partnerships with local schools. However, given the nature of this study, it is

important to also review literature that targets student populations who have specific social-emotional needs. Norwood et al. examined the effects of a 5-week equine program on attention and behavioral outcomes for youth in need of educational interventions (2021). This study was unique in that it specifically aimed to compare the benefits of non-therapy equine programming to the reported benefits of equine-facilitated psychotherapy (EFP). Norwood et al. hypothesized that although numerous studies have reported the positive benefits of EFP, including a "reduction in hyperactivity, inattention and distractibility, and improved self-regulation", that the psychological benefits of the horse may occur outside of the scope of the therapy (2021, pg. 1). Building on previous work that illustrated the benefits of equine programs on youth who have disengaged from school, Norwood et al. sought to evaluate an equine program that excludes a therapeutic intervention. This study aimed to show that EAL could be just as beneficial as EFP, as well as provide insight into the mechanism of this benefit (Norwood, et al., 2021).

The students in this study were attending an alternative school in a socioeconomically disadvantaged area with "lower than average income, school attendance, and educational attainment scores", and did not attend mainstream school due to "suspension or expulsion, behavioral difficulties, or mood disturbances" (Norwood et al., 2021, para. 9). The equine program was provided by Crowson Park Riding Develops Abilities, an outside facility unaffiliated with the alternative school. The program ran for 7 weeks (2-hour long sessions) in small groups (ranging from 4 – 10 students). The curriculum focused on activities that included caring for the horse, being with the horse, walking the horse, and eventually riding the horse.

For analysis, teachers completed the Behavioral Rating Inventory of Executive Function (BRIEF), which provides an overall *Global Executive Composite* score and two major indicators of *Behavioral Regulati*on and *Metacognition*. Higher scores indicate poorer outcomes and high

scores under certain categories have specific implications, such as a potential diagnoses of attention deficit hyper-activity disorder (ADHD). Teachers also completed the SDQ (previously referenced above in Pelyva et al.'s review). Data was collected for two years' worth of programming in order to reach the desired participant number of 50 youth (20 girls, 29 boys, and 1 gender not nominated). A within subject pre-post design was used with data collected within 2 weeks before the intervention and within 2 weeks following the intervention.

The authors found that all of the subscales on the BRIEF showed significant positive changes by the end of the program, with the most notable improvement related to symptoms of ADHD, such as working memory. Following the EAL, students scored significantly more positively on planning and organizing, working memory and inhibition, and shifting and emotional control. The results from the SDQ indicated improvement in all categories, but only the Hyperactivity subscale saw statically significant values. The authors postulate that the lack of the program's impact on emotional well-being might be due to its insufficient dealings with complex life circumstances, and that these issues continued to impact the participants in a negative way. Despite these setbacks, the results from the BRIEF data reveal the positive impact equine programs have on cognitive-behavioral variables, even without a therapeutic component, thus illustrating that a non-therapeutic program can shift behavioral symptoms to a more positive trajectory. This study failed to show improvements in emotional and social competencies, a finding that is particularly significant to the proposed study. The EAL program in Norwood et al.'s study did not appear to follow an SEL curriculum but seemed to focus on the basics of horse handling and riding skills. Our study recognizes the importance of an SEL framework within the EAL program for improving SEL competencies. Investigating the efficacy of building competencies requires a fidelity measure to ensure the curriculum and programming planned is

the curriculum and programming implemented. This is a major gap in prior EAL research, including in Norwood et al.'s study, and one that we addressed in our study.

The next article focused specifically on an EAL program designed to create emotionally safe learning environments for youth who have had adverse childhood experiences correlate to negative outcomes in the following years (Cagle-Holtcamp et al., 2019; see also Burgon 2014). Designed much like the Norwood et al. study, which emphasized a non-therapeutic intervention for youth who are at risk and centered on learning about the horse, this study by Cagle-Holtcamp et al. also incorporated 4 themes of emotional safety (self-esteem, personal security, respect, and connectivity) into the curriculum of the program (2019).

According to the authors, classrooms that suppresses the ability to express emotions hinder the learning potential for youth who have experienced adverse childhood experiences, thereby necessitating intentional programs to aide in their development (Cagle-Holtcamp et al., 2019). The authors contend that sometimes therapeutic interventions, such as talk-therapy, may not benefit all people, whereas having horses participate in experiential learning may be able to reach everyone. The authors describe experiential learning through a trauma-informed lens suggesting it is an "opportunity that encourages participants to work through repressed or subconscious problems by means of active experiences" (2019; see also Wilson & Lipsey, 2000). EAL is an experiential method that focuses on developing specific skills with the horse, while also fostering social, emotional and behavioral skills (Burgon, et al., 2018). Unlike other modalities of services, which tend to neglect the operational and functional aspects of the tool (such as using art supplies for self-expression, but not teaching techniques in painting), EAL is unique in that it teaches responsibility, empathy, discipline, body awareness, patience, the value

of practice and mastery, self-esteem, and many more life skills, because of its interaction with the horse (Cagle-Holtcamp et al., 2019; see also Lentini & Knox, 2015).

Participants for this study were recruited through purposive sampling from an applicant pool meeting the following criteria: living under poverty line, accepting reduced-price or free lunch at school, minority, having a history of criminality, and/or having a history of abuse. Students were chosen from this pool by school counselors, child protective service employees and justice department employees. Thirteen youth, ages 6 – 16-year-old, were selected to participate in the 4 -week EAL program. The lessons in the program entailed cognitive knowledge, including horse behavior, management, handling and riding, as well as activities centered on respect, connectivity, personal security, self-esteem and program reflection.

Data collected included a pretest/post-test over basic equine knowledge (to be taught in the program). Semi-structured interviews were also conducted at the end of each session, with a focus on how they felt, what they learned, and how the information could affect their life outside of the program, with intentional focus on the tone of the responses during the interview. Researchers organized and classified responses under four themes: self-esteem, connectivity, respect, and personal security. Pre- and post- program test scores of the basic equine knowledge showed a statistically significant difference, with an increase in overall scores for each participant. When evaluating the interview responses for each theme, between the first week and final week of the program, the authors found that security had the greatest difference. Although respect, connectivity and self-esteem all had high gains in week 4, there was not shown to be a change or increase in these three themes overtime.

The results of this study uncovered two important items. First, the improvement in pre-test/post-test scores demonstrated the effectiveness of experiential learning in an equine

environment, in other words the students showed measurable growth in the content areas indicating that EAL is an effective mode of teaching. This is particularly meaningful when working with students who may not do well in a traditional classroom setting, and therefore may benefit from an experiential learning environment. Secondly, and perhaps most noteworthy, the significant improvement in personal security demonstrates the ability to create an emotionally safe environment in an EAL program. The authors concluded that the lack of improvement across respect, connectivity and self-esteem warrant further investigation, and that several limitations could have influenced these findings. First, introduction to riding happened in weeks' three and four, which could have negatively influenced the student's feelings of respect and self-esteem, particularly if they struggled with the skills of riding or felt fear. The authors suggested that adding additional weeks into the programming could allow for more time to become comfortable with riding activities. Another limitation of this study was that it lacked external sources of emotional and/or social testing which could have provided an additional method of analysis from the perspective of a caretaker or teacher. Finally, much like Norwood et al.'s study, this study seems to lack a guiding framework informing to inform the curriculum. Perhaps we have seen that building horse skills alone does not improve social and emotional competencies in youth who need more specialized programming. Our study was able to evaluate the impacts of the SEL-focused curriculum on the SEL-centered outcomes.

The final article for review is perhaps the most closely aligned to the proposed study. Pendry et al. (2014) conducted a randomized controlled trial to assess the effectiveness of an 11-week EAL program in improving social competence and behavior of 5^{th} – 8^{th} grade students. Much like our study, the research team collaborated closely with the school in order to evaluate this community-based partnership with a certified EAL provider. And, also similarly to our

study, the main outcome of interest was social competence. This study included 113 children, with 53 students randomly assigned to the EAL program and 60 students randomly assigned to the waitlisted control condition. The program met once a week for approximately 90 minutes, which included both mounted and unmounted activities and personal and group reflection activities.

Data collected included a parent reported Devereux Student Strength Assessment (DESSA), a behavioral rating scale evaluating social and emotional competencies in children. Additionally, at the end of each session, two program facilitators, and a third independent rater, rated positive and negative behaviors using the Animal-Assisted Therapy-Psychosocial Session Form. Raters indicated on a 6-point Likert scale ranging from 0 (none) to 5 (very high) the frequency of 25 positive behaviors (e.g., following direction, accepting feedback, sharing, making eye-contact, appropriately assertive) and 18 negative behaviors (e.g., argumentative, fidgeting, withdrawn, hyperactive, resistant) per student, per session. Summed scores, for each student in each session, were averaged across observers, resulting in individual scores for both positive and negative behavior.

Results indicated a moderate positive effect (d=.55) on social competence of the students who participated in the EAL program, including improvements in personal responsibility, decision making, goal-directed behavior, self-awareness, and self-management. Results also revealed that the degree to which positive behavior increased, and negative behavior decreased throughout the program was significantly linked to the number of sessions attended. This first-ever randomized controlled trial to specifically evaluate the benefits of EAL on social competence provided good preliminary data. However, one limitation of this study is that the causal findings are based on the parents' perceptions of their child's social competence, and

since they were not blind to the treatment, it is possible that the improvements in social competence reflected an optimistic view about the effectiveness of the program. Furthermore, this study only observed changes in behavior within the program, and although this showed significant improvements over time, we are interested in knowing if there are also changes to behavior in school. Our study was able to this body of research by including DESSA reports from teachers, who were blinded to the purpose of the survey. Additionally, our study was also able to investigate the impacts of EAL on symptoms of depression, anxiety and self-efficacy.

Inferences for Forthcoming Research

Several themes were evident from the review of literature on the benefits of equine-assisted learning for youth. First, the reported benefits of EAL on youth development are highly encouraging. These studies reveal that youth who participate in EAL programs show improvements in a variety of areas including improved confidence, self-esteem, as well as increased coping and life skills. It has also been found that participants might show a decrease in negative emotions and behaviors and an increase in positive moods and choices. However, despite most studies reporting positive effects, links between EAL participation and certain outcomes seem to be inconsistent, with evidence pointing to the need for specialized EAL curriculum intent on targeting the identified outcomes. In other words, learning horsemanship skills alone may not be enough to increase social and emotional competencies for youth who need more specialized programming. This concept is supported in other areas of EASs, where interactions with horses during certain therapies (i.e., psychotherapy) emphasizes the importance of integrating horses as a "technique and enhancement to existing treatment approaches, not as a standalone intervention of therapy" (Ekholm-Fry, 2021). For these reasons, it was important that the program for our study was grounded in an SEL framework with the ability to assess fidelity

(are instructors in the program explicitly teaching what the program proposed to teach) and the ability to align the SEL concepts taught in the program with the competencies measured in the DESSA. Accordingly, our researchers conducted treatment fidelity 6 times over the course of the entire study, to ensure that the programming was conducted consistently and reliably.

Another noteworthy consideration from the literature is the finding that students who participate in an EAL program might experience an increase of negative feelings and behaviors post-program. Although it is not certain, this may be due to an inability to work through the traumatic memories that may have surfaced within the program. SEL programs alone may be ill-equipped in handling complex issues that stem from trauma and/or on-going adverse conditions in a person's life. Due to these concerns, the EAL program in our study had a school counselor on site during each session and any additional concerns were shared with the counselor, where they were able to provide immediate follow up. Furthermore, by means of self-reports, our study was able to dive into the immediate impacts the programming had on anxiety, depression and self-efficacy, with the results (see results) confirming the concern that participants may feel just as or more anxious and depressed immediately following a program that is designed to increase self-awareness and emotional literacy.

On a final note, there were several gaps in the current literature that we were not able to meet in our study. First, as previously mentioned, studies have yet to explore the most effective duration of programming for maximum benefit to participants with symptoms of anxiety and depression. Most studies, including ours, evaluated programs that were between 8 – 12 weeks long. However, it is clear in clinical research that interventions aimed to reduce mental health disorders (e.g., anxiety and depression) require at least 15 – 20 sessions to see improvements in 50% of patients, and that there is a positive relationship between treatment length and clinical

outcomes, with some requiring more than 20 – 30 sessions over six months to achieve complete symptom remission. To exacerbate the issue, evidence suggests that those with "co-occurring conditions or certain personality difficulties" may require 12 – 18 months of an intervention for it to be effective (APA, 2017). It is therefore natural to assume that SEL programs which are designed to improve anxiety and depression should have a reasonable expectation for treatment length before deciding the program is not working, thereby suggesting that programs that are less than 12 sessions will most likely not achieve positive outcomes in anxiety and depression. This is an area of EAL that requires further exploration.

The final gap in the literature, as well as a limitation in our study, is the lack of qualitative data. Although there are some studies that have included qualitative pieces, there needs to be a broader look at the perceived impacts of EAL on the participant that may point researchers to potential benefits not yet measured. Some benefits, such as the bond with the horse, or with the horse handler volunteer, may be difficult to measure, but focus groups and interviews (with both participants and parents) may shed valuable insight on the impacts of programming that cannot be identified through quantitative efforts alone. This is especially significant for youth with a history of trauma or adverse childhood experiences, where on-going factors may prevent improvements in SEL competencies, as well as in symptoms of depression and anxiety. However, that does not discount the value of the human-horse interaction, but rather indicates that there may need be other ways to assess significance in the research. With anecdotal evidence so strong for human-horse interactions, it is vital that we begin to explore novel outcomes that might capture this benefit more holistically. Despite the evident need for strengthening future studies, the myriad of success stories cannot be ignored. These stories have

inspired an influx of programming within this field, solidifying EAL as a sought-out experiential learning opportunity for teachers and students alike.

Chapter Three: Methods

Approach

With the mental health crisis in youth at the forefront of public health conversations, as well as informing many public school's strategic planning, school-based partnerships which are designed to improve social-emotional competencies, address symptoms of anxiety, and better understand issues of depression, are needed more than ever before. Anecdotal evidence of equine-assisted learning (EAL) on social and emotional health are highly encouraging and increasingly growing, yet the literature is inconsistent with its reported benefits (e.g., symptoms of anxiety and depression, self-efficacy, and SEL competencies).

This study aimed to provide a better understanding of the impacts of an SEL-focused EAL program for youth who were identified as needing additional social-emotional support. This study, in a first of its kind, was able to measure the efficacy of an 8 – week EAL program by investigating whether or not students who participate have higher scores of social and emotional competencies at post-test than those assigned to the waitlist-control condition. We were also able to investigate whether or not participation increased self-efficacy and decreased symptoms of depression and anxiety from pre-test to post-test, compared to those assigned to the waitlist-control condition. Most specifically, our methods evaluated the following questions:

1. Do students who participate in the 8-week SEL-focused EAL program have higher levels of social and emotional competencies at completion than those who did not participate in the program?
2. In what ways does participation in the 8-week SEL-focused EAL program impact participant self-efficacy and symptoms of anxiety and depression as compared to the control group?

Design

The purpose of this study was to determine the impacts of an 8-week equine-assisted social and emotional learning program, known as **Great Destinations*, for 7th – 8th grade students from a local school district who were not responding to a core social and emotional learning (SEL) program within the schools. We utilized a randomized waitlist control trial to evaluate the impacts of *Great Destinations* on SEL competencies, symptoms of depression and anxiety, and ratings of self-efficacy for students in the Fall of 2022. This waitlist-control design allowed us to experimentally evaluate the impacts of *Greater Destinations* on those who participate versus those who do not by controlling all possible variables, while still allowing us to eventually provide the programming to the control group. This experimental design was the best methodology for this efficacy study because it provided quantifiable evidence to evaluate the program's impact by utilizing a control group in the Fall of 2022 that was scheduled to participate in the program Spring of 2023.

Due to the nature of this study design, my primary role was as an outside observer. Although I was present at each session, *Healing & Horses was responsible for the *Great Destination's* program, including leading classroom instruction, follow-up discussions, arena work, and reflections. Therefore, the participants in the program could participate regardless of my presence. The data from the DESSA reports and self-report surveys were deidentified during analyses. Colorado State University's (CSU) IRB approved all study procedures under Full Board review. This study was also approved by the participating school district's Assessment & Research Committee (who requested to remain anonymous in the literature).

*Names and identities were changed to protect the privacy of these organizations.

Participants

Six schools committed to participate and were randomized so that three schools were assigned to the experimental group, and participated in *Great Destinations* in the Fall of 2022, and three schools were assigned to the waitlist-control group and participated in *Great Destinations* in the Spring 2023. *Great Destinations* was provided by *Healing & Horses Riding Center (Healing & Horses), a Professional Association of Therapeutic Horsemanship International (PATH, Intl.) Premiere Accredited Center. We, the researchers, assessed program fidelity during 50% of the program sessions (4 of the 8), with average fidelity of 95%. Inter-rater reliability was conducted 3 out of the 4 fidelity sessions, with average reliability of 98%.

Counselors from the participating schools identified students who were unengaged and/or not responding to Tier 1 (universal or core) SEL instruction and/or had exhibited social-emotional challenges in school (e.g., behavioral disruptions in the classroom and frequent absences), and therefore were identified as needing additional SEL support. To be eligible for recruitment, students had to meet the following conditions: a) be 12+ years-old, b) be entering 7th or 8th grade in the 2022-2023 school year, and c) be capable of participating safely in a group setting, as evaluated by school counselors. Participants were required to be 12+ years-old because the outcome measures (e.g., DESSA) are only validated for that age group. Additionally, we required participants to be entering 7th or 8th grade so that counselors knew the students prior to the start of the semester (although this was not always the case). Finally, for the safety and welfare of both horses and participants, Healing & Horses required the following exclusions: a) any student who weighed 200+ pounds, b) any student who refused to wear a safety helmet (provided by Healing & Horses), c) any student who had a history of fire starting or animal abuse, and d) any student who had an extreme fear of riding horses.

School counselors mentioned the *Great Destinations* program to the pre-identified potential students and provided handouts (created by the research team and Healing & Horses) for parents/guardians (see appendices A – D). These handouts included detailed information about the study, as well as a QR code linking to CSU's REDCap database (a secure, HIPPA-compliant web-based application) to access the online consent form and Healing & Horses enrollment packet. After the online forms were completed, and parental consents were attained, we (myself and two IRB approved Healing & Horses team members) conducted in-person assent visits with the students at their respective schools. During these visits, Healing & Horses discussed the *Great Destination's* program with the group and asked questions about their homelife (who they lived with...i.e., parents/guardians, siblings, animals) and what they enjoyed doing in their free time. These questions served to get to know the students in order for Healing & Horses to make informed decisions when pairing students with horses and volunteer horse leaders. Healing & Horses made great efforts to create these partnerships based on the students' past experiences and comfort level with horses and based on the personality types and personal strengths of the volunteers.

These visits concluded with one-on-one assent where we reviewed the Student Assent Form (see appendices E – F), discussed the potential benefits and risks of the study (i.e., horses can be dangerous, discussing feelings and experiences can be triggering, etc.) and provided an opportunity for the student to ask any questions. At the end of this one-on-one, if the student wished to participate, they were asked to sign the Student Assent Form. These visits resulted in 16 students identified to participate in the experimental condition and 15 students identified to participate in the wait-list control condition.

Great Destinations Program

Great Destinations is an 8-week equine-assisted social and emotional learning program which occurs at Healing & Horses, a Professional Association of Therapeutic Horsemanship International (PATH Intl) Premier Accredited Center. PATH Intl. leads the advancement of professional equine-assisted services through a rigorous credentialing process, and also serves to enforce the required PATH Intl. standards. Healing & Horses has the highest level of accreditation possible through PATH Intl. and all of their instructors hold the PATH Intl. Certified Therapeutic Riding Instructors (CTRI) certification. Healing & Horses, and their program, *Great Destinations*, are in no way affiliated with the research team, nor with Colorado State University. We (CSU research team) were not responsible for the Healing & Horses programming in any way.

Healing and Horses has a strong partnership with their local school district dating back almost a decade within the *Great Destination* program. Each week, students travel by school bussing to the 3.5 hours-long program. Guided by the CTRIs, students begin the morning in a classroom-based group activity where they are introduced to the theme for the day (i.e., specific SEL competency). After a quick break, students are led into the barn for the equine-assisted learning (EAL) portion of the program, where students are divided into small groups of 3 – 4 participants during all EAL activities. Each small group consists of both a lead and support CTRI, as well as one Horse Leader (Healing & Horses adult volunteer) per student. These partnerships, with both their assigned horse and Horse Leader, are maintained for the duration of the 8 weeks. The EAL activities are centered on the specific social and emotional competency of the day, and include: 1) a warm-up, 2) a description and demonstration of the activity, 3) practicing the activity, 4) a cool-down centered on reflection.

After the EAL activity, students re-enter the classroom for the final portion of the program where CTRIs, Horse Handler volunteers and students engage in discussion on what they learned that day and how they can apply it at home and in everyday life. Additionally, they are assigned 'homework' which typically consists of practicing and/or discussing the newly acquired SEL skills with family or friends.

Demographics

In order to characterize the students participating in the study, information was pulled from the Healing & Horses enrollment packet (see appendix G). The Healing & Horses enrollment packet included (but was not limited to) the student's age, weight, sex, race/ethnicity, parent contact information, household income, student IEP/504 plan status, student health history and any diagnoses. The enrollment packet also included the Traumatic Events Screening Inventory – Parent Report Revised (TESI-PRR). The TESI-PRR is a 28-item parent-reported checklist that assesses a child's exposure to potentially traumatic events in three categories: 1) accident, disaster, or illness, 2) physical maltreatment, and 3) sexual maltreatment. This tool has been validated as a parent-report measure of adverse childhood experiences (Choi et al., 2019). Based on research findings, a score of 1 – 3 could pose possible mental and physical health risks for children, and those exposed to high levels of trauma (4 or more types of events) are 2.9 times more likely to suffer from considerable mental and physical health problems (Roberts, et al., 2004). On a final note, we elected to use the parent-report tool for reporting the child's exposure to trauma, rather than the self-reporting tool, in order to prevent undue emotional stress on the student from self-reports of this kind.

The information collected from the enrollment packet, along with the TESI-PRR data, provided thorough characterization of the students participating in the study (see Table 2 for data

collection timeline) and are represented in Table 1 below. It is important to address a few key differences between the groups. First, our experimental group and waitlist control group had considerable differences in IEP and/or 504 standings, with 60% of our experimental group reporting an IEP and/or 504 statuses, while only 13% of our waitlist control group reported an IEP/and or 504 statuses. An IEP, which stands for Individualized Education Program, is designated to students who have an identified disability (including mental and emotional disorders) that affect their academic success, and typically include individualized special education services to meet unique needs, while a 504 provides services and changes to the learning environment to enable students to learn alongside their peers (Lovett et al., 2020) It has been reported that the vast majority of students with emotional and behavioral disorders "perform well below grade level in literacy and math and receive more failing grades than students in any other disability group" (Kern et. al., 2018; Bradley et al., 2008). The significant differences between IEP and/or 504 statuses between the experimental group and waitlist-control group is something to be considered.

Furthermore, it should be noted that the TESI-PRR (described above) also indicated great differences in trauma between the groups. As a reminder, six schools participated in the study, with three randomly assigned to the experimental group and three randomly assigned to the wait-list control group. Therefore, we did not anticipate significant differences between the randomly assigned groups. The experimental group had 60% of its participants score 4 or higher on the TESI-PRR, while only 33% of the waitlist-control group scored a 4 or higher. A score greater than 0 can be a cause of concern, and no student in either group scored below a 1. However, as described above, a score of 4 or higher indicates significant exposure to traumatic events and is correlated with a much greater risk of mental and/or physical problems. This corresponds to the

findings that 73% of the experimental group reported at least one mental health diagnosis, while only 33% of the waitlist-control group reported at least one mental health diagnosis. Given these significant differences in demographics, it is important to consider the potentially greater needs of the experimental group when analyzing the data.

Table 1

Demographics

Data Type	Experimental Group n = 15 (%)	Control Group n = 15 (%)
Gender		
Male	8 (53.3)	1 (6.6)
Female	5 (33.3)	13 (86.6)
Non-Binary	1 (6.6)	1 (6.6)
Transgender	1 (6.6)	0
Living Situation		
w/Parent/s	15 (100.0)	12 (80.0)
w/Foster Parents	0	1 (6.6)
w/Guardian	0	2 (13.3)
IEP/504 Status		
IEP	4 (33.3)	2 (13.3)
504	4 (33.3)	0
Both	1 (6.6)	0
Neither	6 (40.0)	11 (73.3)
Did Not Respond	0	2 (13.3)
Mental Health Diagnosis		
Yes	11 (73.3)	4 (33.3)
No	3 (20.0)	6 (40.0)
Did Not Respond	1 (6.6)	5 (33.3)
TESI-PRR Score		
3 or below	3 (20.0)	11 (73.3)
4 or above	12 (80.0)	4 (33.3)

Data Collection

This study aimed to evaluate the efficacy of *Great Destinations* within the following areas: 1) improved social and emotional competencies, 2) decreased anxiety and depression, and

3) improved self-efficacy. We collected pre-tests and post-tests for both conditions (experimental group and wait-list control group) by gathering data from parents/guardians, teachers, and students (see table 2 for data collection timeline). First, parents/guardians and teachers each completed the Devereaux Student Strength Assessment (DESSA) approximately one week before the program started and then the same parent/guardian and teacher each completed the DESSA again approximately 1 week post study. We also had students complete the Generalized Anxiety Disorder Questionnaire (GAD-7), the Patient Health Questionnaire (PHQ-9) and the General Self-Efficacy Scale (GSES) approximately 1 week before the program started and again at the end of the program. These assessment/surveys are each discussed in greater detail below.

The Devereaux Student Strength Assessment (DESSA)

In order to measure differences and changes in social and emotional competencies, parents and teachers were asked to complete the Devereaux Student Strength Assessment (DESSA) within one week pre- and post-program for both the experimental group and the waitlist control group (see Table 2 for data collection timeline). This allowed for comparisons of and changes to SEL competencies both within and between groups. The DESSA is a 72-item, standardized, norm-referenced behavior rating scale that assesses the social-emotional competencies across 8 scales: self-awareness, social-awareness, self-management, goal-directed behavior, relationship skills, personal responsibility, decision making, and optimistic thinking. A combination of the scores from each scale provides a composite score of the overall indication of the child's social and emotional competence. Accordingly, we were able to look at significant changes within each scale, along with significant changes in the total score.

The DESSA, for use with both parents and teachers, is a common and well-utilized instrument for evaluating social-emotional competencies in youth. Evidence of both criterion and

construct validity have been reported for the DESSA (LeBuffe et al., 2009), as well as having very high internal reliability with alpha coefficients for the social-emotional composite score of .98 for parents and .99 for teachers (LeBuffe et al., 2018). To my knowledge, this is the 2nd study of its kind to evaluate improvements in SEL competencies using the DESSA for youth in an SEL-focused EAL program, and the first of its kind gathering responses from both teachers and parents/guardians in a randomized control trial.

The Generalized Anxiety Disorder Questionnaire (GAD – 7)

To assess for improvements in symptoms of anxiety, all students (n=30) from both conditions, the experimental group (n=15) and waitlist control (n=15) were asked to complete the Generalized Anxiety Disorder Questionnaire (GAD-7) within one week pre-program and again at the end of the program (see Table 2 for data collection timeline). This allowed for comparisons related to symptoms of anxiety both within and between groups. The GAD – 7 is a seven-item questionnaire that measures the frequency and severity of anxiety symptoms from the past 2 weeks. A total score of 8 or greater signifies a practical cut-point for identifying possible cases of generalized anxiety disorder, providing a sensitivity of 92% (Plummer, et al., 2016). Compared to other anxiety questionnaires, GAD-7 was determined to be more sensitive in identifying a change in status, and previous research have shown it has excellent reliability (Cronbrach alpha 0.895) and good factorial and construct validity (Lowe, et al., 2008; Williams, 2014.) Accordingly. The GAD-7 is a common and efficient tool for assessing generalized anxiety disorders, in both clinical practice and in research. To my knowledge, this will be the first study of its kind to evaluate the impacts of an SEL-focused EAL program on symptoms of anxiety.

Patient Health Questionnaire – 9 (PHQ – 9)

To assess for improvements in symptoms of depressions, all students (n=30) completed the Patient Health Questionnaire – 9 (PHQ-9), which measures the frequency and severity of depression symptoms from the past 2 weeks. This questionnaire was completed within one week pre-program and at the end of the program by both the experimental group (n=15) and the waitlist control group (n=15), which allowed for comparisons related to symptoms of depression both within and between groups (see Table 2 for data collection timeline). The PHQ – 9 is a nine-item instrument that measures a broad set of experiences and includes both positive and negative feelings and thoughts. A total score equal or greater than 10 had a sensitivity of 71% for identifying students with increased risk for issues with mental health. Evidence has shown that this questionnaire is a highly sensitive screening tool for depression and is a reliable (Cronbach alpha 0.86) and valid measure of depression severity in youth (Allgaier, et al., 2012; Williams, 2014). To my knowledge, this will be the first study of its kind to evaluate the impacts of an SEL-focused EAL program on symptoms of depression in youth in a randomized control trial.

General Self-Efficacy Scale (GSES)

To assess for improvements in self-efficacy, all students completed the General Self-Efficacy Scale (GSES) within one month pre-program and again at the end of the program for both the experimental group (n=15) and the waitlist control group (n=15) (see Table 2 for data collection timeline). This 10-item Likert scale instrument is the most commonly used measure to evaluate a youth's self-efficacy (i.e., ability to overcome difficult situations), and has been shown in studies to have high internal consistency (Cronbach alpha = .95) and test-retest reliability (IR = 0.96)(Lei at al., 2020; Grammatopoulou et al., 2014). The GSES has been used in numerous studies to measure an individual's competence in overcoming difficult situations

(Kupst et al., 2015; Luszcynska et al., 2005). To my knowledge, this will be the first study of its kind to collect measures of self-efficacy in a randomized control trial to determine the impacts of an SEL-focused EAL program on the self-efficacy of youth.

Table 2

Data Collection Timeline

Data Type	Pre	9/19	9/26	10/3	10/17	10/24	10/31	11/7	11/14	11/28	Post
Parent Consent and Student Assent	X										
Enrollment Packet and TESI-PR	X										
Changing Leads Program (Experimental Only)		X	X	X	X	X	X	X	X		
Make-up Week (if needed)										X	
GSES, PHQ-9, GAD-7	X							X			
DESSA – Teacher	X										X
DESSA – Parent	X										X

Data Analysis

De-identified data was imported into SPSS statistical software for analysis. Descriptive statistics was used to describe demographic characteristics of the participants in the study (see Table 1). Participants from both the experimental group and waitlist control group were compared to identify any pre-existing differences between the groups. To assess the preliminary efficacy of *Great Destinations*, statistical analysis was performed using SPSS (REF). Repeated measures analysis of variance (ANOVA) was fit for each response variable separately. Specifically, group (experimental or waitlist control) was the between-subjects factor and time (Pre, Post) was the within-subjects factor. If we found evidence of a Group*Time interaction, then paired t-tests were run separately by group to compare means for post vs pre within group. P-values were used to determine statistical significance at .05 or below. Effect size was also calculated for each measure, using Cohen's d. Based on previous literature and our pilot data, the

primary outcome variables are social-emotional competency, anxiety, and depression, and general self-efficacy.

These methods of statistical analyses allowed us to explore the differences between fixed (i.e., pre-post) and random (i.e., student variability) effects within and between groups, which thereby allowed us to assess our research questions on whether or not an SEL-focused EAL program would improve SEL competencies, decrease symptoms of anxiety and depression, and improve self-efficacy for the participants. We had excellent participation across the various pre- and post-test measures from parents, teachers and students (illustrated in Table 3).

Table 3

Total Respondents per Category

Data Type	Experimental Group (n=15)	Waitlist Control Group (n=15)
DESSA – Teacher – Pre- and Post	15	14
DESSA – Parent – Pre- and Post	15	11
PHQ – 9 (Student Self Report)	15	15
GAD – 7 (Student Self Report)	15	15
GSES (Student Self Report)	15	15

Chapter Four: Results

Introduction

This study aimed to evaluate the effects of a social-emotional focused equine-assisted learning program for youth with a history of trauma on social-emotional competencies, symptoms of anxiety and depression, and perceptions of self-efficacy. Previous research has shown that students who participate in school-based social-emotional learning (SEL) programs demonstrate significant improvements across psychological, behavioral and educational domains (Durlak et al., 2022). Furthermore, while the research in equine-assisted learning is limited, there is good evidence of positive changes in the mental and social-emotional health of youth who engage in general competency building in an equine environment (Cagle-Holtcamp, et al., 2019; Coffin, 2019; Pendry et al., 2014). With the abundance of data supporting the CASEL framework for SEL, we sought to evaluate the efficacy of an SEL-focused equine-assisted learning program on building social-emotional competencies for youth in the program, compared to a waitlist-control group. We also wanted to determine the impacts of this programming on symptoms of anxiety and depression, and perceptions of self-efficacy compared to the waitlist-control group.

Social-Emotional Competencies (DESSA) Results

The Deveraux Student Strength Assessment (DESSA) was used to evaluate social-emotional competencies across 8 scales: self-awareness, social-awareness, self-management, goal-directed behavior, relationship skills, personal responsibility, decision making, and optimistic thinking. A combination of scores from each scale provides a total social-emotional competency score. We were able to look at the differences of total scores, as well as the differences amongst the sub-categories from pre-test to post-test between the groups

(experimental versus control). We were also able to evaluate for differences in scores between the parent reports and teacher reports.

First, it is important to note that conflicting differences were found between the baseline (pre-test) parent DESSA reports and teacher DESSA reports between groups. We found a significant difference between baseline scores ($p = .047$) when comparing the experimental group to the waitlist-control group. What is notable in this finding is the conflicting differences between parent scores and teacher scores for each group. In the experimental group, on average, parents scored their students lower ($M = 154.53$, $SD = 11.12$) than the teachers ($M = 160.13$, $SD = 12.7$), while in the waitlist-control group, teachers scored their students considerably lower ($M = 139.76$, $SD = 13.65$) than the parents ($M = 184.46$, $SD = 11.94$). To summarize this data, teachers scored an average difference of 20 points in favor of the experimental group having more baseline social-emotional competencies, while parents scored an average difference of 30 points in favor of the control group having more baseline social-emotional competencies. These significant differences in baseline means between groups could be due to the wide range of test scores amongst each individual student, as seen in the rather high standard deviation. However, these conflicting differences between the parents' and teachers' perceptions of baseline competencies should also be considered when analyzing the results.

Parent DESSA Results

As previously mentioned, an ANOVA was fit for each response variable separately (see Table 5). The results from the parent DESSA pre- and post-test scores showed a statistically significant difference between the experimental group and waitlist control group ($p = .01$), with the experimental group showing significant evidence of improvement in SEL competencies across almost all of the sub-categories, while the waitlist control group showed a slight decrease

in SEL competencies. Due to these findings, we ran a separate paired t-test to compare means for post- vs pre- within each group, finding significant change ($p = .002$) for the experimental group, and no evidence of change for the waitlist control group ($p = .79$). A Cohen's d was done to calculate the effect size for the experimental group with a finding of .995, indicating a large effect (see table 4). This was a very significant finding, providing great evidence for the impact of the program on increasing social-emotional competencies in youth.

We were also interested in investigating which subcategories (e.g., self-awareness, social awareness, etc.) showed the most significant changes within (see Table 4) and between (see Table 5). The parent DESSA pre- and post-test scores for the experimental group showed significant change in every sub-category: Optimism ($p = .001$), Self-Management ($p = .002$), Self-Awareness ($p = .004$), Relationship Skills ($p = .006$), Social Awareness ($p = .006$), Personal Responsibility ($p = .009$), and Decision-Making Skills ($p = .017$), and Goal-Directed Behavior ($p = .033$)(see table 4). We also found significant differences across most sub-categories when comparing the experimental group with the waitlist-control group: Self-Management ($p = .002$), Optimism ($p = .009$), Decision-Making Skills ($p = .01$), Self-Awareness ($p = .01$), Relationship Skills (.02). We also found near statistical significance and greater positive changes for the experimental group in Social-Awareness (.06), Goal-Directed Behavior (.07) and Personal Responsibility (.09) when comparing the two groups (see Table 5). Additionally, we saw a decrease or no change in scores across all categories for the waitlist-control group (see Table 5).

These promising findings from the Parent DESSA reports are consistent with previous studies that found positive social-emotional outcomes for youth who participate in EAL programs (Cagle-Holtcamp et al., 2019; Lentini & Knox, et al., 2015; Pendry et al., 2014) and

provide excellent preliminary evidence for the efficacy of *Great Destinations* on building social-emotional competencies in youth.

Table 4

DESSA Parent Survey Results for Experimental Group (within)

Data Type	Pre-measure mean	Post-measure mean	Difference in means	p-value	Cohen's d	Effect Size
DESSA Parent Total	154.53	193.60	39.067	.002	.995	large
Optimism	13.40	19.27	5.867	.001	1.294	large
Self-Management	21.07	27.80	6.733	.002	.950	large
Self-Awareness	14.67	18.33	3.667	.004	.894	large
Relationship Skills	25.07	29.60	4.533	.006	.834	large
Social Awareness	18.07	22.80	4.733	.006	.838	large
Personal Responsibility	21.07	25.20	4.133	.009	.789	medium
Decision Making Skills	17.53	21.60	4.067	.017	.698	medium
Goal-Directed Behavior	21.40	26.33	4.933	.033	.611	medium

*Paired Samples T-Test to look at differences within groups.

Table 5

DESSA Parent Survey Results (between)

Data Type	Pre-measure mean	Post-measure mean	Difference in means	p-value
DESSA Total Scores				.01
Experimental (n=15)	154.53	193.60	39.067	
Waitlist-Control (n=11)	182.00	179.09	- 2.90	
Self-Management				.002
Experimental (n=15)	21.07	27.80	6.73	
Waitlist-Control (n=11)	26.82	25.64	-1.18	
Optimism				.009
Experimental (n=15)	13.40	19.27	5.87	
Waitlist-Control (n=11)	15.89	16.55	0.66	
Decision Making Skills				.01
Experimental (n=15)	17.53	21.60	4.07	
Waitlist-Control (n=11)	20.55	20.18	-0.37	
Self-Awareness				.01
Experimental (n=15)	14.67	18.33	3.66	
Waitlist-Control (n=11)	17.46	16.63	-0.83	
Relationship Skills				.02
Experimental (n=15)	25.07	29.60	4.54	
Waitlist-Control (n=11)	26.90	26.00	-0.90	
Social Awareness				.06
Experimental (n=15)	18.07	22.80	4.733	
Waitlist-Control (n=11)	22.36	23.00	0.636	
Goal-Directed Behavior				.07
Experimental (n=15)	21.40	26.33	4.93	
Waitlist-Control (n-11)	24.82	24.18	-0.64	

Personal Responsibility				.09
Experimental (n=15)	21.07	25.20	4.13	
Waitlist-Control (n=11).	24.73	24.18	-0.55	

*ANOVA to assess differences between groups.

Teacher DESSA Results

Despite the significant findings from the parent DESSA reports, the results from the teacher DESSA pre- and post-test scores showed no statistical significance between the experimental group and waitlist control group (p = .62)(see Table 6). However, we still saw greater positive changes for our experimental group compared to our wait-list control group across the total scores (see Table 6), and across several subcategories, including Social-Awareness, Personal Responsibility, Decision-Making Skills, and Optimism, with a near statistical significance in Optimism (p = .06) between groups. Furthermore, we also saw an increase in means across Self-Management, Self-Awareness, and Relationship Skills, although equal to the positive increases seen in our waitlist-control group.

Although we were not able to show statistical significance within the teacher DESSA reports, we did see a small effect size in our experimental group (d = .264), as well as a greater increase of positive changes from the experimental group compared to the wait-list control group.

Table 6

DESSA Survey Total Results

Data Type	Pre-measure mean	Post-measure mean	Difference in means	p-value	Cohen's d	Effect Size
DESSA Teacher				.616		
Experimental (n=15)	160.133	175.933	15.8		.264	small
Waitlist Control (n=14)	142.000	148.857	6.857		.236	small

PHQ-9 Results

The Patient Health Questionnaire (PHQ – 9) is a validated instrument that measures the frequency and severity of depression symptoms from the past 2 weeks. Research is conflicted in the potential benefits of EAL on mental health with some reporting evidence of change, while others reported an increase of symptoms of depression post-program (Haig & Skinner, 2021; see also Idzerda, 2009). We did not find a statistical difference between the experimental group and the waitlist-control group (see Table 7), and we found no effect from the program (d = -.101). On the contrary, we found a slight increase of the mean in symptoms of depression whereas the wait-list control group experienced a slight decrease in symptoms from pre-test to post-test. At first glance, our study seems to confirm the findings reported in Haig & Skinner that EAL programming, in the absence of licensed therapy, may increase symptoms of depression, which was discussed as a potential outcome due to participants encountering past traumas without adequate support to deal with it. Along with the trauma, the ending of the program, which also signifies the end of the support structure they found in *Great Destinations,* may also trigger various symptoms of depression.

Despite these findings, diving deeper into the data did show small positive changes amongst the experimental group. First, it is important to note that when used as a screening for depression, the most widely recommended cut-off value is 10, as this provides the best combination of sensitivity (0.88) and specificity (0.88)(Munoz-Navarro et. al., 2017). Baseline scores for both groups showed a mean score greater than 10 (experimental group mean = 10.933; waitlist-control 12.933), indicating moderate depression symptoms on average, for each group respectively.

Furthermore, according to the DSM, Major Depressive Disorder is diagnosed if 5 to 9 symptoms or more have been present for "more than half of the days" in the last 2 weeks, and other types of depression are diagnosed if 2 to 4 depressive symptoms have been present for "more than half of the days" (Kroenke et al., 2001). Baseline scores for the experimental group showed 6 of the 15 met the criteria for risk of Major Depressive Disorder, while 3 of the 15 met the criteria for lesser depression diagnoses. The control group has similar findings, with 8 of the 15 meeting the criteria for risk of Major Depressive Disorder and 1 of the 15 for other depression diagnoses. We were interested in seeing if participation in the program slightly reduced the total score and/or reduced the number of "more than half of the days" responses.

In the experimental group, eight participants had a total score of 10 or greater pre-test, with five showing a decrease in symptoms post-test and three of those participants dropping below the cut-off value of 10. Additionally, of the nine participants in the experimental group that met the criteria for risk of Major Depressive Disorder, and other depression diagnoses, seven participants showed improvement in the number of days per week they struggled, decreasing from almost every day and/or more than half the days to only several days per week, with one of those participants dropping below the diagnostic criteria. Although these findings are promising, we also found similar improvements in the waitlist-control group. Of these participants, 10 had a total score of 10 or greater pre-test, with six showing a decrease in symptoms post-test and four of those participants dropping below the cut-off value of 10. Of the nine participants in the waitlist-control group who met the criteria for risk of Major Depressive Disorder, and other depression diagnoses, five participants showed improvement in the number of days per week they struggled, decreasing from almost every day and/or more than half the days to only several days per week.

Conversely, we also saw some participants in both groups experience an increase in depression scores from pre-test to post-test. From the experimental group, seven saw an overall increase in total scores, while in the waitlist-control group five saw an increase in total scores.

GAD – 7 Results

The General Anxiety Disorder Questionnaire (GAD – 7) is a validated instrument that measures the frequency and severity of anxiety symptoms from the past 2 weeks. SEL has decades worth of research demonstrating the reduction of anxiety for students who have improved SEL competencies (CASEL, 2018; Durlak et al., 2011). However, there are limited studies, to date, in EAL that explore the effectiveness of EAL programs on anxiety, and those available have conflicting findings (Haig & Skinner, 2021). We found no statistically significant differences in the GAD-7 pre-test versus post-test scores between groups ($p = .395$). However, we did find a small effect size ($d = .206$) with a slight decrease in mean for the experimental group (Table 7). In light of these small changes, it is important to take a closer look at the individual responses to better understand potential impact.

The scores of 5, 10, and 15 for the GAD – 7 are taken as cut off points for mild, moderate, and severe anxiety, respectively, with a threshold of 10 for screening for various anxiety disorders (Sapra, et al., 2020). With a baseline mean of 11.133 for the experimental group and 12.933 for the waitlist-control group, it is evident that both groups, on average, are at risk for generalized anxiety disorder. More specifically, seven participants in the experimental group, and six participants from the waitlist-control group scored a 15 or above at baseline, indicating severe anxiety, while two participants from the experimental group met the criteria for moderate anxiety, four from the waitlist-control met that same criterion. We were interested in

seeing if participation in the program slightly reduced the total score and/or reduced the number of “more than half of the days” and/or “almost every day” responses for each participant.

In the experimental group, eight participants saw a decline in total scores for symptoms of anxiety, while also seeing a total reduction in days experiencing symptoms. Two of those participants showed significant change in that they each improved from ‘severe anxiety’ and ‘moderate anxiety’ to below threshold (<10), respectively. Three participants dropped below experiencing symptoms “more than half of the days” for any category. Interestingly, we found similar findings within our waitlist-control group. Eight participants saw a decline in total scores for symptoms of anxiety, although not all saw a reduction of days of experiencing symptoms. Three participants showed significant change in that they each improved from ‘severe’ anxiety to below threshold (<10), and two participants dropped below experiencing symptoms “more than half of the days” for any category.

Much like the PHQ-9 findings, we also saw some individuals experience an increase of anxiety symptoms in both groups. Six participants from the experimental group showed a slight increase of symptoms from pre-test to post-test, while only three experienced an increase in the waitlist-control group.

GSES Results

Lastly, the General Self-Efficacy Scale (GSES), which measures the perceived self-efficacy regarding coping and adapting to daily events, optimism and satisfaction, showed no statistically significant difference between groups ($p = .270$) and we found no main effect ($d = -.050$)(see Table 7). Previous research shows mixed results in SEL impacting self-efficacy, with some showing no main effect (Rosen, et al, 2022), while others report mixed results (Loeb et al., 2019). Research in EAL shows similar findings, with some studies showing no main effect on

self-efficacy (Hauge, et al., 2014), while others showed an increase of perceived self-efficacy through an EAL program (Diaz, et al., 2022). It should be noted that both of our groups scored slightly above average when compared to average mean scores for adults (m = 29.98, sd = 4.6), with the baseline mean of 32.533 for the experimental group and 30.667 for the waitlist-control group. We saw a nominal decrease in mean for the experimental group, with a post-test mean of 32.133, and a slight increase in mean for the waitlist-control group, with a post-test mean of 32.876. However, due to these minor differences in scores it is important to take a deeper look at individual results.

To start, it's important to note that within the experimental group baseline scores ranged from 15 to 49, showing a massive range in perceived self-efficacy within these participants. Looking closer at individual scores, we saw 6 participants in the experimental group show small improvements in their self-efficacy scores, with an average of 5.5-point increase, and a trend in changes of feeling positively about various items on the scale from 'almost never' and 'never' to 'fairly often' and 'often'. However, one participant showed no change, while six participants showed a slight decrease in scores (on average 2.5-point decrease) and two participants showed a more substantial drop, with one decreasing by 10 points and one decreasing by 23 points from pre-test to post-test.

We saw slightly better trends within the wait-list control group. The baseline scores for this group were slightly more consistent, ranging from 25 to 44. Eleven of the participants experienced improvements in self-efficacy scores from pre-test to post-test, with an average of 4.36-point increase. While one participant showed no change, two participants showed a decrease by 2 points on average, and one participant showed a significant decrease of 13 points.

Table 7

Self-Report Analysis

Data Type	Pre-measure mean	Post-measure mean	Std. Deviation	Difference in means	p-value	Cohen's D	Effect Size
PHQ – 9					.10		
Experimental (n=15)	10.933	11.333	3.942	-0.4		-.101	none
Waitlist Control (n=15)	12.933	10.200	5.934	2.733		.461	medium
GAD - 7					.395		
Experimental (n=15)	11.133	10.067	5.189	1.066		.206	small
Waitlist Control (n=15)	12.267	9.667	4.517	2.6		.576	medium
GSES					.307		
Experimental (n=15)	32.533	32.133	7.935	0.4		-.050	none
Waitlist Control (n=15)	30.667	32.867	5.545	-2.2		.397	small

*Negative differences in means for PHQ-9 and GAD-7 indicate increases in symptoms of depression and anxiety, respectively, whereas a negative difference in means for the GSES indicates an increase in perceptions of self-efficacy.

Summary of Results

Our study set out to evaluate the efficacy of *Great Destinations*, an 8-week SEL-focused EAL program, on social-emotional competencies, symptoms of anxiety and depression, and perceptions of self-efficacy, for youth who are struggling socially and emotionally in school. According to the parent DESSA pre- and post-tests, our study found great evidence of change in social-emotional competencies for participants in the *Great Destination's* program ($p = .01$), with a large effect size ($d = .995$), indicating a significantly strong relationship between participating in the program and improving SEL competencies. Although the teacher DESSA did not show statistical significance ($p = .616$), we did find a small effect size for participants in Great Destinations ($d = .264$), indicating a modest effect. Additionally, according to the results of the Teacher DESSA, and compared to our waitlist-control group, we saw greater improvements in Social-Awareness, Personal Responsibility, Decision-Making Skills, and Optimism, with a near statistical significance in Optimism ($p = .06$). The findings from the teacher DESSA report

provided further preliminary evidence of the positive impacts of *Great Destinations* on building social-emotional competencies.

We did not find a statistically significant difference across all three self-reporting instruments when comparing pre-test and post-test scores between groups (see table 6). Although the PHQ-9, which measures the severity of depression, did not show statistically significant differences ($p = .10$), we did find improvements in symptoms of depression for some participants. Similarly, we did not find statistically significant differences in the GAD-7 scores ($p = .395$), which measures the severity of generalized anxiety, we did find small improvements for some of our participants, and we also found a small effect size ($d = .206$) for the experimental group. Lastly, the GSES scores, which measured perceived self-efficacy, did not show significant differences between groups ($p = .307$), however we did find small improvements for almost half of our experimental group. Overall, we did not find statistically significant evidence that an 8-week SEL-focused EAL program is effective in reducing symptoms of depression and anxiety or in improving general perceptions of self-efficacy for youth who are struggling. However, given the positive changes in some participants, it is important to investigate these areas further to fully understand why we see changes in some and not in others. We will discuss these issues further in the next chapter.

Chapter Five: Discussion

Review of the Need

The serious mental health crisis in our youth has created a great need for prevention, early identification and service development in order to prevent the devastating long-term effects from untreated conditions. The COVID-19 pandemic was an accelerant to poor mental health by creating challenges such as social isolation, lack of accessibility to therapeutic services, and almost "complete loss of all structured occupations (school, work and training)" (Power et al, 2020). There are great concerns for the long-term effects of the COVID-19 lockdown, with early reports showing increased rates of anxiety, poorer sleep and irritability, as well as a lack of commitment to structured systems, such as school and work, all leading to long-term impacts on the home-life, schools, and future work force (Jiao et al, 2020, Power et al., 2020, Bearman, et al., 2020). To exacerbate the issue, prior to the pandemic, CDC data showed that only about 1 in 5 children with a mental health disorder received care from a mental health provider, with lack of access being a significant factor, and now with the exponential increase of cases, and disparities in care from marginalized backgrounds, most youth are left untreated (Binder, 2022). Public health officials, local hospitals and schools all heed the same warning, "if we continue to merely react to this catastrophe, we will perpetuate a multigenerational calamity" (Binder, 2022; see also FAIR Health 2022; HHS Press Office, 2021; Vestal, 2021).

With schools and homes feeling the brunt of this condition, parents and teachers are hungry for outside services that benefit youth mental health; and with psychiatric services in short supply, it is vital we explore unique school-based services that aide in prevention and care. Backed by decades of research, the integration of social-emotional learning (SEL) in academic settings can significantly impact youth well-being (Durlak et al., 2011), yet there are many

students with histories of trauma and/or adverse childhood experiences who do not respond to general SEL efforts within the classroom. External school-based partnerships, which also focus on SEL, may provide the additional support required to build SEL competencies for these particular youth who are struggling. Experiential learning (EL) through human-animal interactions is a fast-growing field, with EL alone already shown to have a higher potential for building social-emotional competencies than non-experiential learning, while the integration of an animal in the learning may provide the added value of aiding in issues stemming from trauma (Chan et al., 2021; Bachi et al., 2012; Barker et al., 2015; Bass et al., 2009; Dietz et al., 2012; Martin & Farnum, 2012; Burgon, 2011).

This study, informed by CASEL's social-emotional learning theoretical framework, as well as by the added benefits of experiential learning with animals, set out to explore the efficacy of a CASEL-informed SEL program provided through experiential learning in an equine environment. More specifically, this study was designed to provide valuable data to the limited body of research in equine-assisted learning (EAL) by exploring its impacts on SEL competencies, symptoms of anxiety and depression, and perceived self-efficacy through the following research questions:

(1) Do students who participate in the 8-week SEL-focused EAL program have higher levels of social and emotional competencies at completion than those who did not participate in the program?

(2) In what ways does participation in the 8-week SEL-focused EAL program impact participant self-efficacy and symptoms of anxiety and depression as compared to those who did not participate in the program?

Parent DESSA Discussion

We are eager to share and discuss the findings from the parent DESSA reports. The results from the parent DESSA pre- and post-test composite scores showed a statistically significant difference between those who participated in *Great Destinations* than those who did not ($p = .01$), with a nearly 40-point increase in the composite score post-programming (compared to a 3-point decrease for the waitlist-control). We also found a significant change within the experimental group ($p = .002$) with a large effect size ($d = .995$). We saw the greatest improvements in Self-Management ($p = .007$), Optimism ($p = .009$), Self-Awareness ($P = .01$), Relationship Skills ($p = .021$), Personal Responsibility ($p = .04$), and Decision-Making Skills ($p = .048$). The effects of this program were independent of the participant's pre-test scores, history of trauma, IEP/504 status, gender, and pre-existing mental health diagnosis.

These findings are consistent with previous research indicating the positive impacts of EAL on various social-emotional competencies, particularly for youth who are struggling (Haig & Skinner, 2021; Pelyva et al., 2020; Pendry et al., 2014; Norwood et al., 2021). These findings also provide great evidence for the benefits of an SEL-focused EAL program on building competencies for youth who are not responding to SEL efforts in the classroom. The results from the parent DESSA provides solid evidence for the efficacy of *Greater Destinations* on increasing social-emotional competencies in youth who need additional support.

Teacher DESSA Discussion

Contrary to the parent DESSA findings, we did not find a statistically significant difference in the mean teacher DESSA scores from pre-test to post-test between the experimental group and waitlist control group ($p = .62$). Accordingly, we calculated effect size using Cohen's d and found a modest effect ($d = .264$) from the participation in *Great Destinations* (modest

effect range = 0.21 – 0.50). We also found a slightly greater positive change in the experimental group across total DESSA scores from post-test to pre-test. We found the most notable difference in Social Awareness, Personal Responsibility, Decision-Making Skills, and Optimism, with a near statistical significance in Optimism ($p = .06$). In short, the teacher DESSA indicated slightly greater improvements in total competencies, and across several sub-categories, compared to the wait-list control group, but we had hoped to see greater differences as indicated by the parent DESSA. With these positive findings, it is quite possible that we did not reach statistical significance due to our relatively small sample size and large variability in responses.

DESSA Score Differences (Parent vs Teacher Scores)

It is important to look further into the differences in statistical findings between the parent DESSA and teacher DESSA reports to better understand what might be contributing to these differences. In general, we have a small sample size of 15 per group, and there was a large range of scores within and between both groups, with pre-test ranges from 29 – 258, and post-test ranges slightly higher, from 63 – 290, it can be difficult to find statistical significance under these conditions, which might be why we did not see significance in the teacher DESSA.

Another contributing factor could be differences in parent versus teacher perspectives. Research has shown that in many cases both parents and teachers are reliable evaluators of a child's overall behavioral disposition, however, a major study in 2007 from the University of Virginia set out to establish the influence of parents versus teachers on ratings of behavioral functioning (Konold & Pianta)). Konald & Pianta found that parents are much better at assessing internalizing behaviors (e.g., emotional behaviors and/or physical complaints), while teachers typically make a better assessment of aggressive or delinquent behaviors (e.g., arguing, teasing, threatening, lying, etc.). Furthermore, they found that parents scores are much better indicators of

emotional behaviors and advised that researchers use parent ratings when a discrepancy exists between parent scores and teacher scores (Konold, et al., 2006). Based on these findings, it is quite possible that parents were more sensitive to emotional changes during the 8-week program, thus reflected in the scores.

Furthermore, it is not uncommon for students' behavior to vary quite differently at home versus at school. According to Dr. Maura Rouse, a licensed Clinical Psychologist, youth who struggle with learning difficulties, anxiety and social difficulties, may find either/both the academic and social demands of school to be extra challenging, which then can trigger behavioral problems within the classroom (2019). Negative behaviors become a coping mechanism to avoid social or academic challenges students face. Teachers will see the disruptive behavior but may not realize the extent of the problem. It has been shown that students with anxiety have a very low frustration tolerance, often acting out when faced with situations that are overstimulating. Additionally, students who suffer issues in learning and/or attention often experience "feelings of failure, lack of acceptance and high levels of bullying" all of which increase the risk of problem behaviors that are only observed in classroom (Wake Forest Pediatrics, 2023).

This data speaks volumes to the outcomes of the teacher DESSA when considering the differences in demographics between our experimental group and waitlist-control group. Students in the experimental group had a much higher prevalence of 504/IEP statues compared to the waitlist-control (>60% vs. 2% respectively), as well as much higher incidences of moderate to severe trauma exposure (80% vs. 33% respectively) and a much higher rate of mental health diagnoses (74% vs. 33%). These significant conditions could all lead to more

problematic behaviors within the classroom and could be the main reason teachers did not see as much growth in SEL competencies compared to parents.

On a final note, research in SEL is clear that competency building in youth requires a coordinated approach where adults share the same goals and responsibilities for reinforcing SEL concepts outside of the program, allowing students to practice SEL skills in multiple contexts (Mahoney et al., 2021). Engaging families as partners in social-emotional competency building outside of programming reinforces the lessons by adding greater meaning and relevance within the home. True to SEL form, parents were very active members of the *Great Destinations* program. Not only were students asked to share what they had learned each week with families and practice the skills at home, *Great Destinations* also sent home weekly reports with specific SEL competencies and tools to build on. *Great Destinations* intentionally and extensively included families in the program, even inviting them to a 'graduation' ceremony on the last day. This level of involvement, which included awareness of each week's competency focus, tools to practice at home, and homework which prompted family discussions, most likely led to a much greater exposure to observed changes in social-emotional competencies.

On the other hand, teachers were unaware that their students were participating in an SEL-focused EAL program as part of the study. We had intentionally blinded them to the study, without realizing that their exclusion would result in the inability to transfer these skills into the classroom. Therefore, and even supported by research in SEL, it is quite possible that because teachers were not included in the learning and engagement, they were limited in their ability to fully evaluate improvements in social-emotional competencies. In the future, it is strongly advised that teachers are incorporated in external school-based programs in order to reinforce the concepts within the context of their own classroom.

Despite these potential limitations that may have impacted major findings within the teacher DESSAs, we still saw teacher-identified improvements in SEL competencies at a slightly greater rate compared to the waitlist-control group. These findings, along with the powerful findings from the parent DESSA reports, provide strong evidence for the efficacy of an 8-week SEL-focused EAL program on building social and emotional competencies for youth who need additional support. These are exciting findings for both school-based partnerships and equine-assisted learning programs alike.

Discussion on Student Self Reports

Our second research question focused on the impacts of *Great Destinations* on symptoms of anxiety and depression, and changes to perceived self-efficacy. As previously mentioned, there is considerable research supporting the benefits of SEL programming within these three areas (Durlak, et al., 2011), yet conflicting evidence on the impacts of EAL on depression, anxiety and self-efficacy remain (Haig & Skinner, 2021). We wanted to explore this question further to better understand the impacts of an SEL-focused EAL program within these areas. Unfortunately, consistent with other studies in EAL, we did not find statistically significant changes or differences in symptoms of depression ($p = .10$), anxiety ($p = .395$) or in perceived self-efficacy ($p = .307$).

Discussion on Depression

Based on the aforementioned findings, and at first glance, it does not appear that an 8-week SEL-focused EAL program will reduce overall symptoms of depression for youth who are struggling. However, due to small changes observed in the experimental group, this begs for further investigation. As previously mentioned, the impacts of EAL on depression in youth are conflicting in the research. Although there is good evidence that EAL can improve mental health,

there is also evidence that external circumstances may impede immediate benefits (e.g., contentious homelife, academic or social problems at school). There is also some evidence that in the absence of licensed therapy, participants may see an increase in symptoms of depression post-programming due to their inability to work through potential trauma that surfaced throughout the program (Haig & Skinner, 2021; see also Idzerda, 2009). We could also argue that symptoms of depression could resurface as the result of losing a strong support system (from both trusted adults and the horse) once the program is over, especially if support systems are not as strong in their personal lives.

To complicate the issue, mental health is a complex topic with many factors influencing symptoms, such as home-life, school-life, and past trauma. As a reminder, 80% of the students from the experimental group scored 4 or higher on the Traumatic Events Screening Inventory (TESI) report (compared to only 33% scoring 4 or higher in the waitlist-control group). As previously mentioned, those exposed to high levels of trauma (4 or more types of events) are 2.9 times more likely to suffer from considerable mental and physical health problems (Roberts, et al., 2004) and should be referred to a mental health professional for further assessment and treatment. Additionally, research in mental health interventions is clear in the need to provide extended treatment for complex mental health conditions in order to see changes in symptoms of depression (American Psychological Association, 2017). Given the level of trauma within our experimental group, the limited number of SEL sessions within the program, and the inability to process complex mental health concerns with a licensed therapist, perhaps it is no surprise that there were not significant changes in symptoms of depression from an 8-week program for this particular group of students.

However, it is important to note, we did see some positive changes amongst individual responses. Of the participants who scored at or above the cutoff value of 10 on the pre-test PHQ-9, five showed a decrease in symptoms from pre-test to post-test, with three of those participants improvements significant enough to drop below the cutoff value. Additionally, of the nine participants in the experimental group who met the criteria for Major Depressive Disorder (5 – 9 symptoms or more have been present for "more than half of the days" in the last 2 week, and/or any symptoms of self-harm/suicidal thoughts), or other depression diagnoses (2 – 4 symptoms or more have been present for "more than half of the days" in the last 2 week, and/or any symptoms of self-harm/suicidal thoughts), seven participants showed improvement in the number of days per week they struggled, decreasing from almost every day and/or more than half the days to only several days per week, with one of those participants dropping below the diagnostic criteria. In summary, we found that nearly half of our participants showed improvements in symptoms of depression, which provides preliminary evidence to justify exploring the impacts of EAL on depression in the future.

Despite these positive findings, some of the participants saw an increase in symptoms of depression, so it is difficult to say who might find relief from symptoms and who might not from a program of this kind. To compound the issue, the control group had similar findings (including similar percentages in participants who scored over 10 and met the criteria for depression diagnoses), so without more data, we cannot say with certainty that the experimental group's greater numbers of previous trauma and mental health diagnoses were the sole factors preventing significant changes. It would be valuable to have post-test results from the waitlist control after they complete the program.

Regardless, in the absence of licensed therapy, it may be reasonable to assume that the expectations of a short-term EAL program influencing symptoms of depression should be realistic when working with populations that have significant trauma. Furthermore, with the growing evidence that some students might struggle even more post-programming, it is important that safeguards are explored in order to provide continued support once the program has ended. For example, Healing & Horses provides a limited number of scholarships for some students to continue *Great Destinations* for another 8-week session. It would be extremely valuable to determine whether an increase of EAL sessions lead to greater improvements in symptoms of depression over time for these particular participants.

Discussion on Anxiety

We found no statistically significant differences in the GAD-7 pre-test versus post-test scores between groups ($p = .395$). At first glance, it does not appear that an 8-week SEL-focused EAL program will reduce overall symptoms of anxiety for youth who are struggling. However, the small changes observed in the experimental group amongst individual participants begs for further investigation. We did find a small effect size ($d = .206$) with a slight decrease in mean (decrease of symptoms) for the experimental group. Similar to the discussion on depression, anxiety is a multifaceted issue with potential impacts stemming from on-going issues at home, school, work and/or within social settings. Furthermore, according to the APA, individuals with anxiety disorders often require 8 – 10 therapy sessions before experiencing significant changes in symptoms (Guatam et al., 2017). With a baseline mean of 11.133 for the experimental group and 12.933 for the waitlist-control group, it is evident that both groups, on average, were at risk for generalized anxiety disorder, yet very few had reported a diagnosis in the enrollment packet. It may be reasonable to assume that improvements in symptoms of anxiety for someone who has a

diagnosable condition (and in the absence of licensed therapy) may not be significant in an 8-week SEL-focused EAL program, particularly when that individual has a significant history of trauma.

However, that is not to say we did not find positive changes. In the experimental group, eight participants saw a decline in total scores for symptoms of anxiety, while also seeing a total reduction in days experiencing symptoms. Two of those participants showed significant change in that they each improved from 'severe anxiety' and 'moderate anxiety' to below threshold (GAD – 7 score <10), respectively. Three participants dropped below experiencing symptoms "more than half of the days" for any category. Similar to our findings regarding symptoms of depression, over half of the participants in *Great Destinations* experienced an improvement in symptoms. In the future, it would be worthwhile to see if this trend continues with additional EAL programming.

Conversely, we also found that some participants in the experimental group showed an increase in symptoms of anxiety from pre-test to post-test. This is new information within the field of EAL and perhaps illustrates the need to identify individuals who may need additional support (both during and post-programming). Without more data, it is difficult to say why some students experienced an increase of symptoms of anxiety, while others saw improvements. It would be valuable to explore this phenomenon a bit deeper in future research. Much like the PHQ-9 results, we saw no significant difference between baseline GAD – 7 scores nor between those who met the criteria for anxiety disorders between the experimental group and waitlist-control group, despite the major differences in the populations, as previously discussed. It is possible that the pre-existing population differences (i.e., prevalence of trauma and mental health diagnoses) contributed to the slower gains in symptoms of both anxiety and depression. It is

quite possible that the waitlist-control group might see greater gains post-programming due to their lower incidents of trauma and past diagnoses when entering the program.

Discussion on Self-Efficacy

We found no statistically significant differences in the GSES pre-test versus post-test scores between groups ($p = .270$) and we found no main affect ($d = -.050$). Previous research in SEL and EAL show mixed results in their impacts on self-efficacy (Rosen, et al., 2022; Hauge, et al., 2014; Diaz, et al., 2020). In other studies, outside the field of SEL/EAL, research has found a significant and negative relationship between self-efficacy and depression, and self-efficacy and anxiety (Tahmassian, et. al., 2011). Students struggling with mental health issues will continue to struggle with their perceived ability to cope and/or control life experiences, with particular attention to those who continue to suffer from adverse conditions that may be tied to past or on-going trauma.

Accordingly, it is quite plausible that we did not see significant changes in self-efficacy because we have students who were still struggling with anxiety and depression at post-test. Looking closer, we found that only two students showed a decline in self-efficacy scores post-test, despite having improvements in symptoms of both anxiety and depression. The remaining seven students who showed no improvement or a decrease in self-efficacy had also experienced increases in symptoms of anxiety and/or depression post-test. Our study provides further evidence, specific to EAL, of the negative relationship between self-efficacy and depression and/or anxiety.

Another factor potentially effecting significance is the range of baseline (pre-test) scores in both groups. The experimental group had a baseline range of 15 – 49 and the wait-list control group had a baseline range of 25 – 44. These large ranges, as well as small sample sizes make it

difficult to achieve statistical significance. Looking closer at individual scores, we saw 6 participants in the experimental group show small improvements in their self-efficacy scores, with an average of 5.5-point increase, and a trend in changes of feeling positively about various items on the scale from 'almost never' and 'never' to 'fairly often' and 'often'. Similar to our findings regarding symptoms of depression and anxiety, nearly half of our participants in *Great Destinations* experienced an increase in self-efficacy scores. It appears, based on all of the data surrounding self-efficacy, the ranges in baseline scores, as well as the ranges in changes over time, could be significantly impacting the ability to determine the true impacts of the program.

Limitations and Recommendations

There were several limitations to this study that might be worth noting. First, we had a fairly small sample size (n=30). Although this size is generally enough to warrant assertions against the findings, higher sample sizes are more likely to represent the general population. We saw great variability in our DESSA scores amongst each individual participant, most likely due to the significant differences in histories of trauma. A larger sample size would have served to reduce that variability and would have allowed for a greater degree of accuracy in those variations. Second, parents/caregivers were not blinded to the purpose of the study. In fact, in many cases they participated in providing additional sources of SEL-focused discussions and spaces to practice concepts at home. This knowledge could have influence a biased DESSA report from parents from the experimental group, especially if the parents believed the program would benefit their child.

To counteract this possibility, we hoped that having teachers blinded to the study would allow for unbiased data. After the post-test DESSAs, the teachers were asked if they knew why they had been completing the assessments, with all but 1 teacher indicating they did not know.

Although these results were unbiased, teachers were also not prompted to reinforce what the students were learning from the program in the classroom. We now recognize that there is added value for integration of SEL concepts in multiple environments by adult stakeholders for competency growth.

We also recognize that we were not able to establish beforehand whether this program was of adequate duration (in both frequency per week and over time) to have an impact on any measures regarding mental health, especially if there is a significant history of trauma and/or pre-existing untreated mental health . Regarding SEL competencies, it is likely that results will not be seen in the classroom after only 8 weeks, unless teachers are partnered with the learning process and can reinforce the skills in their own classroom. Additionally, it is advisable that if a program is attempting to improve symptoms of mental health with a population that has a history of trauma, the program may need to be longer than 8 weeks.

Implications for Future Studies

As a result of this study, there are several key findings that are important considerations moving forward. First, and foremost, EAL is rather in its infancy, both as an evidence-based practice and within the research field. Although the integration of horses into human learning has been around for quite some time, there has never been a systematic effort to develop best practices within this service, nor has there been a consistent method in the research on evaluating its efficacy. To complicate the issue, there is limited information about how EAL programs should best understand, describe and conceptually position interactions with horses within the learning environment. This issue is currently a major focus across various therapies that integrate horses into human services (i.e., occupation therapy, psychotherapy, etc.), with a call to action for establishing equine-assisted services (EAS) as a “technique and enhancement to existing

treatment approaches, not as a standalone intervention or therapy" (Ekholm-Fry, 2023). Therapy -first language is recommended when horses are integrated into therapeutic services, which serves to dispel any confusion with what type of service is being provided (e.g., occupational therapy in an equine environment or physical therapy using the movement of the horse)(Wood et al., 2021).

This recent attention to the conceptualization of therapeutic interventions that incorporate horses is just as relevant in non-therapy services. There is currently no standardized approach for integrating horses into human learning, and with the perpetuation of variations in EAS terminology there is often great confusion regarding the differences between therapy vs non-therapy services. The future of EAL practice and research relies on a better understanding of how and why horses are incorporated into human learning. We were fortunate in that the EAL program within our study was informed my CASEL's framework of social-emotional competencies. This informing framework, supported by decades of research, allowed for a streamlined assessment of both program fidelity and participant outcomes. As such, in the future, great attention should be made to the conceptualization of the integration of the horse in both EAL services and in research.

Another consideration moving forward is the importance of qualitative research in the advancement of EAL. Qualitative research has a long-standing, significant history in education sciences due to its ability to effectively address the 'how' and 'why' a phenomenon is observed and by enabling deeper understanding of experiences and contexts (Cleland, 2017). Human experiences are difficult to capture in numbers alone, which often fail to provide the full story. It is important to understand that the inclusion of qualitative data is not solely about how data is collected. Qualitative research approaches are used to explore everyday human experiences, with

reality being a social construct, meaning it exists as "perceived by people and the observer" (Cleland, 2017). Qualitative research seeks to understand how things are interpreted, understood, experienced, and influenced. The real world does not exist in a vacuum, and neither should our research.

Our study provides a great example of how qualitative data could have enhanced our findings. Within our findings, as well as several studies before, we noticed a trend of increased symptoms of depression following an EAL program. This finding seems incongruent with the anecdotal benefits to mental health, often seen in participants and heard from by parents. Focus groups following the study could have provided invaluable insight into why some students were experiencing elevated symptoms while others did not. Perhaps it was related to the home or school experiences. Perhaps it was because the program was ending. Perhaps it was from unresolved trauma that surfaced as the result of the program. The reality is we simply do not know. Educated guesses do not always lead to effective program changes. Qualitative data would allow us to further explore concerns like these in meaningful ways that could impact future studies, as well as lead to better-informed program design.

On a final note, in addition to this study, we were also able to explore the impacts of this program on the welfare of the horse. Those results will be published later this summer. It is vital that all future studies in EAS incorporate the well-being of the horse. Several facets of the equine-industry have been at the forefront of welfare conversations for quite some time, with great public concern for some equine activities (e.g., horse racing, Rodeo). Public policies have been pursued to end what some believe are not ethical practices. The social license to operate (SLO), which is an "intangible, implicit agreement between the public and an industry/group" allows that industry/group to operate with little oversight (Douglas et al., 2022).

Currently, the EAS industry has very little oversight in its operations, however, more so than horse racing and Rodeo, the general public is privy to EAS practices more than any other facet of the industry. This awareness includes how these horses are managed, trained, treated, and how they behave. This reality should not be looked at with concern, but rather with opportunity. EAS research has a great opportunity (and responsibility) to develop evidence-based practices in equine management, training, care, and behavior (research that is greatly lacking in the general equine industry). Given that the horse is the most valuable component of EAS, it is important that we avoid negative public perception through rigorous scholarly work that seeks to improve well-being, as well as through transparent evidence-based practices in management and training. After all, we are not EAS without the horse.

Conclusion

School-based partnerships are needed more than ever before to address the unique challenges of students who are not responding to school-wide efforts in improving student well-being. We are excited to share our findings regarding the efficacy of an SEL-focused EAL program for youth who needed additional support. These students were not responding to SEL efforts within the school, possibly due to their significant history of trauma, as well as pre-existing social-emotional and/or academic struggles. We found significant evidence of change in social-emotional competencies for participants in this 8-week SEL-focused EAL program. We are happy to report that programs, like *Great Destinations,* could be an invaluable resource for students who are struggling in school, as well as an amazing asset for school-based partnerships.

We would also like to note several considerations moving forward. First, it is important that EAL programs be grounded in a conceptual framework that support the goals of the program. Whether the program is designed to improve SEL competencies, or other areas of

personal growth, a conceptual framework should guide the programming. This ensures that EAL programs are always rooted in evidence-based practices, whether that be in pedagogy, human development, psychology or any other field that could be utilized within the context of a learning environment.

Secondly, reasonable expectations should be made regarding the impacts of EAL on improving symptoms associated with mental health. This is even more apparent when participants have a history of significant trauma and/or are at-risk for mental health disorders. If improving mental health is a goal of the program, then considerations should be made to determine the most effective duration (i.e., > 8 weeks for anxiety and >15 weeks for depression). Furthermore, it is anticipated that some students might see an increase of symptoms post-programming. Although it is unclear why this happens, additional resources and on-going support should be a priority on behalf of these students. We also found that an increase in SEL competencies does not necessarily mean an increase in perceived self-efficacy. Preliminary evidence in EAL indicates that self-efficacy is negatively correlated with symptoms of depression and/or anxiety, and this should be a key consideration for the goals of a program.

Finally, we are very excited for the future of EAL research, as there is still much to be done. This study has unpacked several critical needs in future EAL research. First, program duration is a key concern moving forward. We are not sure how long any given EAL program should be for maximum benefit. Most research surrounding the successes of SEL programs are within the context of a school semester (>15 weeks). It is possible that EAL programming would see greater gains in symptoms of mental health (as seen in SEL research) if programs are long enough in duration. Additionally, it is unclear what the long-term impacts of an EAL program

are for youth who participate. It would be advantageous to revisit these youth and evaluate SEL competencies accordingly.

On a final note, we also advise that future EAL research include mixed methods models whereby qualitative discoveries can help unpack several key missing elements within this research area. First, qualitative data would help us better understand why some students experience increases in symptoms of depression and anxiety post-programming. Secondly, and perhaps even more importantly, participants may be able to identify personal outcomes that we have yet to discover in the research. These discoveries could lead to novel and unique considerations within the field of human-animal interactions. Finally, and along those lines, it is important to investigate the specific benefit of the horse. We have yet to fully investigate why the horse is so valuable and unique in human-animal interactions, specifically in EAL. Studies of this kind would be significantly impactful for the future of equine-assisted services. We are excited to see where future research takes us.

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Appendix A: Experimental Group Informational Flyer

Frequently Asked Questions: "Changing Leads" Equine-assisted Social-emotional Learning Program at Thompson School District in Fall 2022

Hearts & Horses and Colorado State University's Temple Grandin Equine Center are conducting a research study on an equine-assisted social-emotional learning program named "Changing Leads," provided to Thompson School District students. The purpose of the study is to assess the preliminary efficacy of "Changing Leads" on students' social-emotional outcomes in comparison to a waitlist control group. The equine-assisted social-emotional learning program will be provided to 30 Thompson School District students free of charge.

Who is eligible to participate?

School counselors will invite students to participate based on the following inclusion criteria:

- Identified by a school counselor as demonstrating a need for instruction in social-emotional competencies and not responding well to school-wide social-emotional interventions
- Age 12 +
- Will be in 7th or 8th grade in the 2022-2023 academic school year
- Able to participate safely in a group setting

Students are not eligible if they

- Weigh more than 200 pounds, for the safety of the horse
- Refuse to wear a helmet
- Have a history or fire starting or animal abuse
- Have a phobia of riding horses (more than just common nervousness)

What will my child and I be asked to do?

Changing Leads Program: For 8 weeks beginning September 19, 2022 your child will go with other middle school students to Hearts & Horses Therapeutic Riding Center, for 3.5 hours each week. The program occurs once a week during the school day, and transportation will be provided by Thompson School District. The first hour each week occurs in a classroom, where your child will learn about a specific social-emotional skill, such as social awareness. Then your child will participate in 2.5 hours of experiential learning activities with horses where the social-emotional skill is reinforced. This includes ground-based activities like grooming the horse, and mounted activities like riding the horse.

Student-completed Questionnaires: Your child will be asked to complete questionnaires on Week 1 and Week 7 of the "Changing Leads" program. The questionnaires will ask about symptoms of anxiety and depression, and about your child's confidence in himself/herself.

Parent/Guardian-completed Questionnaires: When you first agree to participate in the study, you will be asked to complete 3 questionnaires: 1) Hearts & Horses Enrollment Packet, 2) a questionnaire about your child's previous exposure to traumatic experiences, and 3) a questionnaire about your child's social-emotional skills. This will take about 30 minutes. You will be asked to complete a questionnaire about your child's social-emotional skills once more in November 2022. It will take about 10 minutes.

Will my child's information be kept confidential?

All information gathered in this study will be kept as confidential as possible. No reference will be made in written or oral materials that could link you to this study. We will share the "Record Release Form" with Thompson School District if you give us permission to access your child's school records.

Is there any compensation for participation?

You will be compensated with a $20 Amazon gift card each time you complete the questionnaires for a total of up to $40.

Do I have to take part in the study?

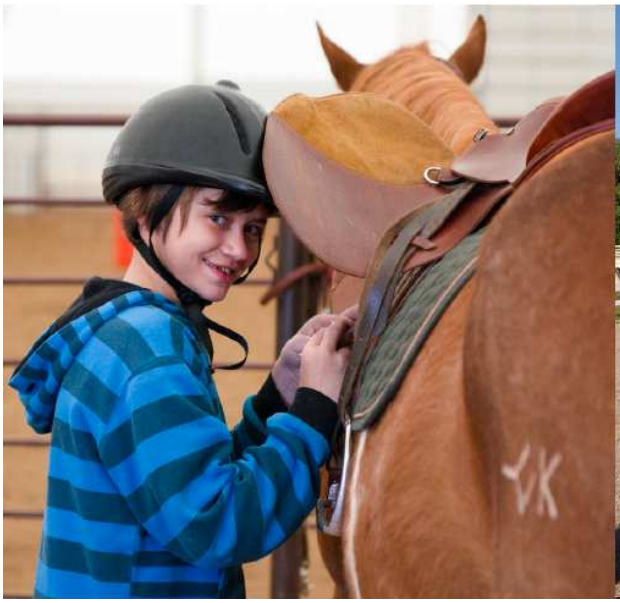
Your child's participation in this study is completely voluntary. Participating or not participating will not affect your child's grades at school. Your child may decline to participate or may stop participating at any time with no penalty even if you have given permission.

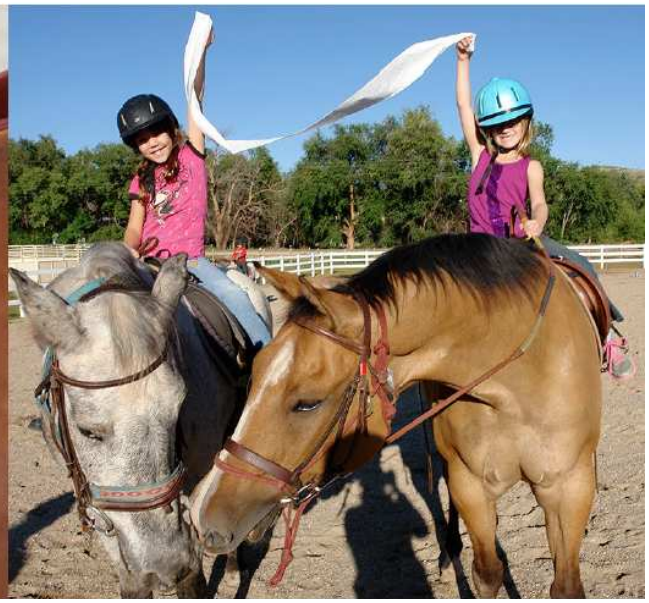
Can I see my child ride a horse?

The last week of the 8-week program is a graduation day, where families are invited to come watch. This is currently scheduled for November 14, 2022 but is subject to change if there are any weather-related cancellations throughout the semester.

How do I enroll or get more information?

If you have any questions please contact Sarah Matlock at Sarah.Matlock@colostate.edu or call/text (970) 889-6607. If you are interested in participating, please complete the consent and enrollment process at **https://redcap.link/ChangingLeads**. The QR code will also take you to the consent and enrollment paperwork.





Appendix B: Control Group Informational Flyer

Frequently Asked Questions: "Changing Leads" Equine-assisted Social-emotional Learning Program at Thompson School District in Fall 2022 and Spring 2023

Hearts & Horses and Colorado State University's Temple Grandin Equine Center are conducting a research study on an equine-assisted social-emotional learning program named "Changing Leads," provided to Thompson School District students. The purpose of the study is to assess the preliminary efficacy of "Changing Leads" on students' social-emotional outcomes in comparison to a waitlist control group. The equine-assisted social-emotional learning program will be provided to 30 Thompson School District students free of charge.

Who is eligible to participate?

School counselors will invite students to participate based on the following inclusion criteria:

- Identified by a school counselor as demonstrating a need for instruction in social-emotional competencies and not responding well to school-wide social-emotional interventions
- Age 12 +
- Will be in 7th or 8th grade in the 2022-2023 academic school year
- Able to participate safely in a group setting

Students are not eligible if they

- Weigh more than 200 pounds, for the safety of the horse
- Refuse to wear a helmet
- Have a history or fire starting or animal abuse
- Have a phobia of riding horses (more than just common nervousness)

What will my child and I be asked to do?

Changing Leads Program: For 8 weeks beginning March 2023, your child will go with other middle school students to Hearts & Horses Therapeutic Riding Center, for 3.5 hours each week. The program occurs once a week during the school day, and transportation will be provided by Thompson School District. The first hour each week occurs in a classroom, where your child will learn about a specific social-emotional skill, such as social awareness. Then your child will participate in 2.5 hours of experiential learning activities with horses where the social-emotional skill is reinforced. This includes ground-based activities like grooming the horse, and mounted activities like riding the horse.

Student-completed Questionnaires: Your child will be asked to complete questionnaires twice in Fall 2022 (September and November 2022) and twice in Spring 2023 (on Week 1 and Week 7 of the "Changing Leads" program). The questionnaires will ask about symptoms of anxiety and depression, and about your child's confidence in himself/herself.

Parent/Guardian-completed Questionnaires: When you first agree to participate in the study, you will be asked to complete 3 questionnaires: 1) Hearts & Horses Enrollment Packet, 2) a questionnaire about your child's previous exposure to traumatic experiences, and 3) a questionnaire about your child's social-emotional skills. This will take about 30 minutes. You will be asked to complete a questionnaire about your child's social-emotional skills three more times: November 2022, March 2023, and May 2023. Each time you complete this questionnaire it will take about 10 minutes.

Will my child's information be kept confidential?

All information gathered in this study will be kept as confidential as possible. No reference will be made in written or oral materials that could link you to this study. We will share the "Record Release Form" with Thompson School District if you give us permission to access your child's school records.

Is there any compensation for participation?

You will be compensated with a $20 Amazon gift card each time you complete the questionnaires for a total of up to $80.

Do I have to take part in the study?

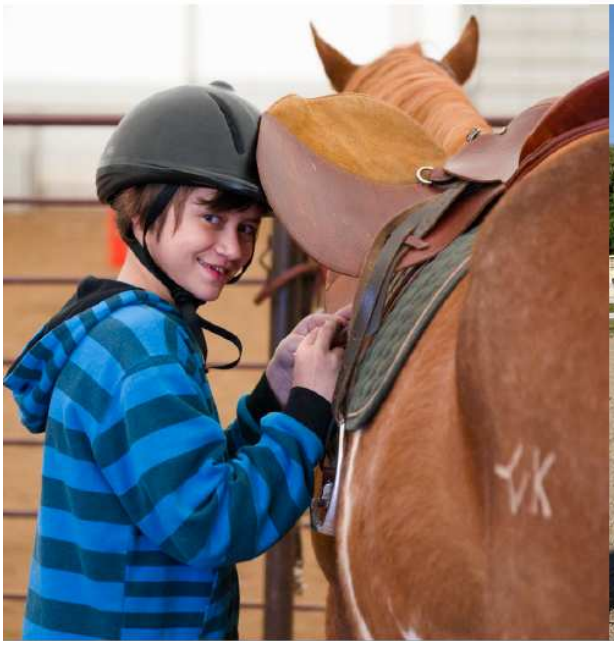
Your child's participation in this study is completely voluntary. Participating or not participating will not affect your child's grades at school. Your child may decline to participate or may stop participating at any time with no penalty even if you have given permission.

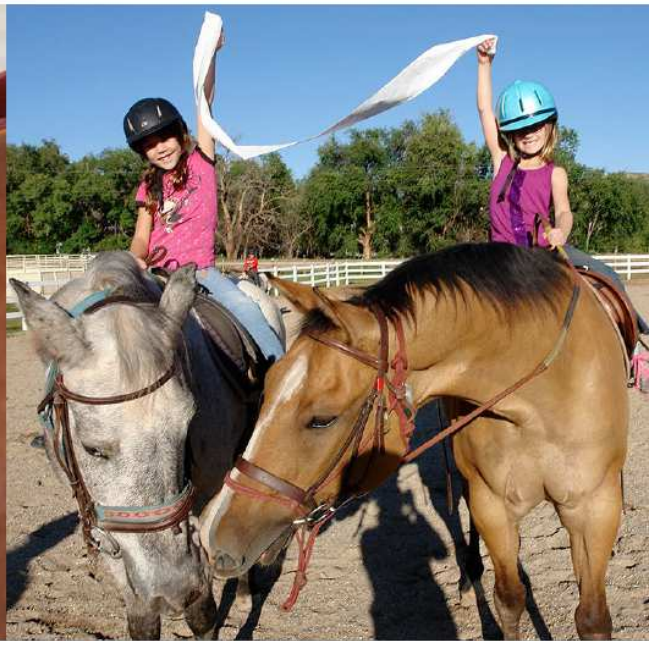
Can I see my child ride a horse?

The last week of the 8-week program is a graduation day, where families are invited to come watch.

How do I enroll or get more information?

If you have any questions please contact Sarah Matlock at Sarah.Matlock@colostate.edu or call/text (970) 889-6607. If you are interested in participating, please complete the consent and enrollment process at **https://redcap.link/ChangingLeads**. The QR code will also take you to the consent and enrollment paperwork.





Appendix C: Experimental Group Parent Consent Form

TEMPLE GRANDIN
EQUINE CENTER
COLORADO STATE UNIVERSITY
1669 Campus Delivery, Fort Collins, CO 80523-1669 (mailing address)
725 S Overland Trail, Fort Collins, CO 80521 (physical address)
Templegrandinequinecenter.com

PARENT / CAREGIVER INFORMED CONSENT FORM

STUDY TITLE: A Pilot Study of an Equine-assisted Social Emotional Learning Program for Youth in Thompson School District

PRINCIPAL INVESTIGATOR: B. Caitlin Peters, Ph.D., Assistant Professor, Animal Sciences

CO-INVESTIGATOR(S): Sarah Matlock, MS, Ph.D. Candidate in Education, Instructor in Animal Sciences

STUDENT INVESTIGATOR(S): Ashley Singh, Master's Student, Animal Sciences

WHAT IF I HAVE QUESTIONS?

For questions or concerns about the study, you may contact Caiti Peters at (720) 665-0023.
For questions regarding the rights of research subjects, any complaints or comments regarding the manner in which the study is being conducted, contact the CSU Institutional Review Board at:
RICRO_IRB@mail.colostate.edu; 970-491-1553.

WHAT IS THE PURPOSE OF THIS STUDY?

The purpose of this research study is to assess the effect of an equine-assisted social-emotional learning program on youth in Thompson School District. The study will also examine the effect of the social-emotional learning program on stress in the horses.

WHY AM I BEING INVITED TO TAKE PART IN THIS RESEARCH?

You are being asked to participate in the study because your child fits these criteria:

- Identified by a school counselor as demonstrating a need for instruction in social-emotional competencies and not responding well to school-wide social-emotional interventions
- Age 12 +
- Will be in 7th or 8th grade in the 2022-2023 academic school year, and completed the Spring 2022 semester at the school he/she will attend in Fall 2022.
- Able to participate safely in a group setting

You are not eligible to participate in this study if your child

- Weighs more than 200 pounds
- Refuses to wear a helmet
- Has a history of fire starting or animal abuse
- Has a phobia of riding horses (more extreme than just nervousness)

WHERE IS THE STUDY GOING TO TAKE PLACE AND HOW LONG WILL IT LAST?

What will I do?	How long will it take?	When?	Where?
Your child will participate in the "Changing Leads" program	28 hours total	Sep – Nov 2022	Hearts & Horses
Your child will complete questionnaires, 2 times	20 minutes total	Once Aug/Sep 2022 Once Nov 2022	Hearts & Horses
You will complete questionnaires, 2 times	40 minutes total	Once Aug/Sep 2022 Once Nov 2022	Online or In-person
Total	29 hours	Aug 2022 – Nov 2022	

WHAT WILL I BE ASKED TO DO?

If you volunteer to participate in this study, you will be asked to do the following:

Your child will participate in the "Changing Leads" Program at Hearts & Horses Therapeutic Riding Center

- "Changing Leads" is an equine-assisted social-emotional learning program.
- For 8 weeks beginning September 2022, your child will go with other middle school students to Hearts & Horses Therapeutic Riding Center, for 3.5 hours each week. Transportation will be provided by Thompson School District.
- The first hour each week occurs in a classroom, where your child will learn about a specific social-emotional skill, such as social awareness.
- Then your child will participate in 2.5 hours of activities with horses. This includes ground-based activities like grooming the horse, and mounted activities like riding the horse.

Your child will complete questionnaires 2 times

- Your child will be asked to complete questionnaires on Week 1 and Week 7 of the "Changing Leads" program
- The questionnaires will ask you about symptoms of anxiety and depression, and about your child's confidence in himself/herself.
- Each time your child completes these questionnaires it will take about 10 minutes, for a total of 20 minutes throughout the study

You will complete questionnaires 2 times

- When you first agree to participate in the study, you will be asked to complete 3 questionnaires: 1) Hearts & Horses Enrollment Packet, 2) a questionnaire about your child's previous exposure to traumatic experiences, and 3) a questionnaire about your child's social-emotional skills. This will take about 30 minutes.
- You will be asked to complete a questionnaire about your child's social-emotional skills once more in November 2022. It will take about 10 minutes.

ARE THERE ANY BENEFITS FROM TAKING PART IN THIS STUDY?

If you participate in this study your child will receive 8 weeks of "Changing Leads", an equine-assisted social emotional learning program that may improve social-emotional outcomes in youth. There may be no direct benefits to you or your child. We hope to learn more about the effects of equine-assisted social-emotional learning in youth.

WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?

- Interacting with horses is an inherently risky physical activity; while uncommon, there are minor physical risks such as being bumped by the horse, stepped on by the horse, or feeling sore after riding. While extremely rare, it is also possible participants could fall off or be otherwise injured by the horse. Hearts & Horses has premiere accreditation from the Professional Association of Therapeutic Horsemanship International and therefore follows all best practices to ensure participant safety including trained staff and volunteers, and use of helmets and appropriate tack. If an injury occurs, basic first aid is provided on-site, or emergency personnel are called if needed; an incident report is also completed and the participant or parent/guardian are called for a follow-up call within 12 hours.
- It is possible that being around horses may cause feelings of fear, nervousness, or discomfort. Staff at the riding center will do their best to make your child feel comfortable through slowly introducing the horse and providing encouragement. Your child will never be forced to interact with or mount a horse if s/he does not want to.
- While completing questionnaires, your child will be asked about feelings of anxiety, depression, and confidence in one's self. Thinking about this personal information may bring up feelings of sorrow, nervousness, or other emotions. At any point during the questionnaires, your child can choose not to answer a question or stop filling them out completely. There are no right or wrong answers to the questions. A school counselor will be present to help process any emotions that arise as needed.
- While completing questionnaires, you will be asked about your child's history or traumatic experiences and about your child's social-emotional skills. Thinking about this personal information may bring up feelings of sorrow, nervousness, or other emotions. At any point during the questionnaires, you can choose not to answer a question or stop filling them out completely. There are no right or wrong answers to the questions.

WILL I RECEIVE ANY COMPENSATION FOR TAKING PART IN THIS STUDY?

You will be compensated with a $20 Amazon gift card each time you complete the questionnaire about your child's social-emotional skills, for a total of up to $40.

WHO WILL SEE THE INFORMATION THAT I GIVE?

All information gathered in this study will be kept as confidential as possible. Your privacy is very important to us and the researchers will take every measure to protect it. Your information may be given out if required by law; however, the researchers will do their best to make sure that any information that is released will not identify you. No reference will be made in written or oral materials that could link you to this study. For this study, we will assign a code to your data so that the only place your name will appear in our records is on the consent form, any hard-copy questionnaires, and in our data spreadsheet which links you to your code. Only the research team will have access to the link between you, your code, and your data. All records will be stored in a restricted access secure folder or a locked drawer in a restricted-access office at CSU for three years after completion of the study. We may be asked to share the research files with the sponsor or the CSU Institutional Review Board ethics committee for auditing purposes. Your identity/record of receiving compensation (NOT your data) may be made available to CSU officials for financial audits.

The research team works to ensure confidentiality to the degree permitted by technology. It is possible, although unlikely, that unauthorized individuals could gain access to your responses because you are responding online. However, your participation in this online survey involves risks similar to a person's everyday use of the internet.

Your information collected as part of the research, even if identifiers are removed, will not be used or distributed for future research studies.

You should know, however, that there are some circumstances in which we may have to show your information to other people. For example, the law may require us to tell authorities if we believe your child is currently being abused, or poses a danger to himself/herself or someone else.

We will share the "Record Release Form" with Thompson School District if you give us permission to access your child's school attendance and behavioral referral records.

DO I HAVE TO TAKE PART IN THE STUDY?

Your child's participation in this study is completely voluntary. Participating or not participating will not affect your child's grades at school. Your child may decline to participate or may stop participating at any time with no penalty even if you have given permission.

WHAT ELSE DO I NEED TO KNOW?

With your permission, we will ask one of your child's teachers to complete a questionnaire about your child's social-emotional skills. We would also like to use you child's school attendance and behavioral referral records for research purposes. When we share the results of the study, your name will not be linked to the data.

PARENTAL CONSENT FOR MINOR

Do you give permission for the school to provide the following information? Check all that apply.

- ☐ A teacher-completed questionnaire of your child's social-emotional competencies
- ☐ Attendance record
- ☐ Behavioral referrals

As parent or guardian I authorize _____ (print name) to become a participant for the described research. My signature also acknowledges that I have received, on the date signed, a copy of this document containing 4 pages.

_____
Minor's date of birth

_____
Parent/Guardian name (printed)

_____ _____
Parent/Guardian signature Date

_____
Parent/Guardian Email Address

_____
Parent/Guardian Phone Number

Appendix D: Control Group Parent Consent Form

TEMPLE GRANDIN EQUINE CENTER
COLORADO STATE UNIVERSITY
1669 Campus Delivery, Fort Collins, CO 80523-1669 (mailing address)
725 S Overland Trail, Fort Collins, CO 80521 (physical address)
Templegrandinequinecenter.com

PARENT / CAREGIVER INFORMED CONSENT FORM

FORMAL STUDY TITLE: A Pilot Study of an Equine-assisted Social Emotional Learning Program for Youth in Thompson School District

PRINCIPAL INVESTIGATOR: B. Caitlin Peters, Ph.D., Assistant Professor, Animal Sciences

CO-INVESTIGATOR(S): Sarah Matlock, MS, Ph.D. Candidate in Education, Instructor in Animal Sciences

STUDENT INVESTIGATOR(S): Ashley Singh, Master's Student, Animal Sciences

WHAT IF I HAVE QUESTIONS?

For questions or concerns about the study, you may contact Caiti Peters at (720) 665-0023.
For questions regarding the rights of research subjects, any complaints or comments regarding the manner in which the study is being conducted, contact the CSU Institutional Review Board at: RICRO_IRB@mail.colostate.edu; 970-491-1553.

WHAT IS THE PURPOSE OF THIS STUDY?

The purpose of this research study is to assess the effect of an equine-assisted social-emotional learning program on youth in Thompson School District. The study will also examine the effect of the social-emotional learning program on stress in the horses.

WHY AM I BEING INVITED TO TAKE PART IN THIS RESEARCH?

You are being asked to participate in the study because your child fits these criteria:

- Identified by a school counselor as demonstrating a need for instruction in social-emotional competencies and not responding well to school-wide social-emotional interventions
- Age 12 +
- Will be in 7th or 8th grade in the 2022-2023 academic school year, and completed the Spring 2022 semester at the school s/he will attend in Fall 2022.
- Able to participate safely in a group setting

You are not eligible to participate in this study if your child

- Weighs more than 200 pounds
- Refuses to wear a helmet
- Has a history of fire starting or animal abuse
- Has a phobia of riding horses (more extreme than just nervousness)

WHERE IS THE STUDY GOING TO TAKE PLACE AND HOW LONG WILL IT LAST?

What will I do?	How long will it take?	When?	Where?
Your child will participate in the "Changing Leads" program	28 hours total	Mar – May 2023	Hearts & Horses
Your child will complete questionnaires, 4 times	40 minutes total	Once Aug/Sep 2022 Once Nov 2022 Once Mar 2023 Once May 2023	School School Hearts & Horses Hearts & Horses
You will complete questionnaires, 4 times	1-hour total	Once Aug/Sep 2022 Once Nov 2022 Once Mar 2023 Once May 2023	Online or In-person
Total	30 hours	Aug 2022 – May 2023	

WHAT WILL I BE ASKED TO DO?

If you volunteer to participate in this study, you will be asked to do the following:

Your child will participate in the "Changing Leads" Program at Hearts & Horses Therapeutic Riding Center

- "Changing Leads" is an equine-assisted social-emotional learning program.
- For 8 weeks beginning March 2023, your child will go with other middle school students to Hearts & Horses Therapeutic Riding Center, for 3.5 hours each week. Transportation will be provided by Thompson School District.
- The first hour each week occurs in a classroom, where your child will learn about a specific social-emotional skill, such as social awareness.
- Then your child will participate in 2.5 hours of activities with horses. This includes ground-based activities like grooming the horse, and mounted activities like riding the horse.

Your child will complete questionnaires 4 times

- Your child will be asked to complete questionnaires twice during the Fall 2022 academic semester (Aug/Sep and November 2022).
- Your child will be asked to complete the same questionnaires on Week 1 and Week 7 of the "Changing Leads" program
- The questionnaires will ask about symptoms of anxiety and depression, and about your child's confidence in himself/herself.
- Each time your child completes these questionnaires it will take about 10 minutes, for a total of 40 minutes throughout the study

You will complete questionnaires 4 times

- When you first agree to participate in the study, you will be asked to complete 3 questionnaires: 1) Hearts & Horses Enrollment Packet, 2) a questionnaire about your child's previous exposure to traumatic experiences, and 3) a questionnaire about your child's social-emotional skills. This will take about 30 minutes.
- You will be asked to complete a questionnaire about your child's social-emotional skills three more times: November 2022, March 2023, and May 2023. Each time you complete this questionnaire it will take about 10 minutes.

ARE THERE ANY BENEFITS FROM TAKING PART IN THIS STUDY?

If you participate in this study your child will receive 8 weeks of "Changing Leads", an equine-assisted social emotional learning program that may improve social-emotional outcomes in youth. There may be no direct benefits to you or your child. We hope to learn more about the effects of equine-assisted social-emotional learning in youth.

WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?

- Interacting with horses is an inherently risky physical activity; while uncommon, there are minor physical risks such as being bumped by the horse, stepped on by the horse, or feeling sore after riding. While extremely rare, it is also possible participants could fall off or be otherwise injured by the horse. Hearts & Horses has premiere accreditation from the Professional Association of Therapeutic Horsemanship International and therefore follows all best practices to ensure participant safety including trained staff and volunteers, and use of helmets and appropriate tack. If an injury occurs, basic first aid is provided on-site, or emergency personnel are called if needed; an incident report is also completed and the participant or parent/guardian are called for a follow-up call within 12 hours.
- It is possible that being around horses may cause feelings of fear, nervousness, or discomfort. Staff at the riding center will do their best to make your child feel comfortable through slowly introducing the horse and providing encouragement. Your child will never be forced to interact with or mount a horse if s/he does not want to.
- While completing questionnaires, your child will be asked about feelings of anxiety, depression, and confidence in one's self. Thinking about this personal information may bring up feelings of sorrow, nervousness, or other emotions. At any point during the questionnaires, your child can choose not to answer a question or stop filling them out completely. There are no right or wrong answers to the questions. A school counselor will be present to help process any emotions that arise as needed.
- While completing questionnaires, you will be asked about your child's history or traumatic experiences and about your child's social-emotional skills. Thinking about this personal information may bring up feelings of sorrow, nervousness, or other emotions. At any point during the questionnaires, you can choose not to answer a question or stop filling them out completely. There are no right or wrong answers to the questions.

WILL I RECEIVE ANY COMPENSATION FOR TAKING PART IN THIS STUDY?

You will be compensated with a $20 Amazon gift card each time you complete the questionnaire about your child's social-emotional skills, for a total of up to $80.

WHO WILL SEE THE INFORMATION THAT I GIVE?

All information gathered in this study will be kept as confidential as possible. Your privacy is very important to us and the researchers will take every measure to protect it. Your information may be given out if required by law; however, the researchers will do their best to make sure that any information that is released will not identify you. No reference will be made in written or oral materials that could link you to this study. For this study, we will assign a code to your data so that the only place your name will appear in our records is on the consent form, any hard-copy questionnaires, and in our data spreadsheet which links you to your code. Only the research team will have access to the link between you, your code, and your data. All records will be stored in a restricted access secure folder or a locked drawer in a restricted-access office at CSU for three years after completion of the study. We may be asked to share the research files with the sponsor or the CSU Institutional Review Board ethics committee for auditing purposes. Your identity/record of receiving compensation (NOT your data) may be made available to CSU officials for financial audits.

The research team works to ensure confidentiality to the degree permitted by technology. It is possible, although unlikely, that unauthorized individuals could gain access to your responses because you are responding online. However, your participation in this online survey involves risks similar to a person's everyday use of the internet.

Your information collected as part of the research, even if identifiers are removed, will not be used or distributed for future research studies.
You should know, however, that there are some circumstances in which we may have to show your information to other people. For example, the law may require us to tell authorities if we believe your child is currently being abused, or poses a danger to himself/herself or someone else.

We will share the "Record Release Form" with Thompson School District if you give us permission to access your child's school attendance and behavioral referral records.

DO I HAVE TO TAKE PART IN THE STUDY?

Your child's participation in this study is completely voluntary. Participating or not participating will not affect your child's grades at school. Your child may decline to participate or may stop participating at any time with no penalty even if you have given permission.

WHAT ELSE DO I NEED TO KNOW?

With your permission, we will ask one of your child's teachers to complete a questionnaire about your child's social-emotional skills. We would also like to use you child's school attendance and behavioral referral records for research purposes. When we share the results of the study, your name will not be linked to the data.

PARENTAL CONSENT FOR MINOR

Do you give permission for the school to provide the following information? Check all that apply:

- ☐ A teacher-completed questionnaire of your child's social-emotional competencies
- ☐ Attendance record
- ☐ Behavioral referrals

As parent or guardian I authorize _____ (print name) to become a participant for the described research. My signature also acknowledges that I have received, on the date signed, a copy of this document containing 4 pages.

_____
Minor's date of birth

_____
Parent/Guardian name (printed)

_____ _____
Parent/Guardian signature Date

_____
Parent/Guardian Email Address

_____
Parent/Guardian Phone Number

Appendix E: Experimental Group Student Assent Form

A Pilot Study of an Equine-assisted Social-emotional Learning Program for Youth in Thompson School District

Youth Assent Form Ages 12-14

Hello!

I'm a teacher at Colorado State University. I study how horses can help people. This is called research. My research is about how participating in activities with horses can help kids. I am asking you if it is OK that I study you while you ride horses at Hearts & Horses Therapeutic Riding Center.

If you say it is OK, I'll ask you to complete some questionnaires twice this semester, once right now and once in November. It will ask you questions about if you've been nervous or sad lately, and how much confidence you have in your ability to do hard things. There isn't a right or wrong answer. The questionnaires will take about 10 minutes each time.

Then, next semester, I'll ask you to go do activities with horses like learn how to groom the horse and ride the horse. You'll go to Hearts & Horses once a week for 8 weeks beginning in March next year. I'll also ask you to fill out the same questionnaires on the first and seventh week that you go to Hearts & Horses.

I'll also ask your mom and dad and a teacher to fill out questionnaires, to see if they notice anything different about you before and after you go to Hearts & Horses.

It's possible you could get hurt when you're with the horses, but an adult will be with you the whole time to help keep you safe. It's also possible you'll have a lot of fun while you're with the horses! The questionnaires might make you sad, but you don't have to answer the questions if you don't want to.

Your participation in this study is completely voluntary. Participating or not participating will not affect your grades at school. You may stop participating at any time without penalty. Even if your parents have approved your participation, you may decide not to participate if you don't want to.

I will ask your parents if it is OK that you do this, too. If you want to be in this research, sign your name and write today's date on the line below.

_____ _____

Student Date

_____ _____

Researcher Date

Appendix F: Control Group Student Assent Form

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A Pilot Study of an Equine-assisted Social-emotional Learning Program for Youth in Thompson School District

Youth Assent Form Ages 12-14

Hello!

I'm a teacher at Colorado State University. I study how horses can help people. This is called research. My research is about how participating in activities with horses can help kids. I am asking you if it is OK that I study you while you ride horses at Hearts & Horses Therapeutic Riding Center.

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Your participation in this study is completely voluntary. Participating or not participating will not affect your grades at school. You may stop participating at any time without penalty. Even if your parents have approved your participation, you may decide not to participate if you don't want to.

I will ask your parents if it is OK that you do this, too. If you want to be in this research, sign your name and write today's date on the line below.

_____ _____

Student Date

_____ _____

Researcher Date

Appendix G: Hearts and Horses Enrollment Packet

EXPLANATION OF PROGRAM SERVICES, PARTICIPANT ELIGIBILITY AND POLICIES
****KEEP FOR YOUR REFERENCE****
Page 1 of 2

WHAT IS *CHANGING LEADS*?

Changing Leads utilizes Equine Facilitated Learning (EFL), an educational approach that includes activities incorporating the experience of equine/human interaction, as a partnership, in an environment of learning or self-discovery. EFL encourages personal exploration of feelings and behaviors to help promote human growth and development. The program utilizes a team approach consisting of a horse, an Equine Specialist, a volunteer and an educator.

BENEFITS OF EQUINE FACILITATED LEARNING - Experiential learning utilizing horses can assist in the development of:

- Mutual trust, respect, empathy and unconditional acceptance
- Identifying and changing negative thought patterns
- Healthy risk-taking, self-discipline and self-control
- Accountability
- Boundary setting
- Improved self-esteem, confidence, success and responsibility
- Problem-solving and conflict resolution skills
- Positive leadership skills and teamwork

WHO WE CAN HELP

Individuals, families, and groups can experience the benefits of EFL to address issues including:

- Attachment, depression, anger
- Anxiety, boundary difficulties, self-esteem
- Substance abuse, domestic violence
- Physical, emotional and sexual abuse

WHY A HORSE?

The horse is a social animal and therefore acts as a mirror and metaphor for many common human issues. Horses facilitate self-awareness in a deep and profound way. They have no expectations, prejudices or motives and therefore offer humans many opportunities not easily found elsewhere.

Horses respond to our spoken and unspoken messages and our interactions with them can be powerful and intuitive. As our awareness increases, behavior changes and the horse mirrors this change. Horses bring beauty, grace, personality and honesty to the process. The program then transfers these new insights, skills and successes gained in the arena into the participant's everyday life.

TO GET STARTED

Read this packet carefully; complete the *Changing Leads* Enrollment Packet and return to Hearts & Horses.

Once all completed forms are returned to Hearts & Horses, scheduling will be completed and you will be notified when your class will take place. We will ensure that our program is appropriate for you and that there are no contraindications to your participation in equine assisted growth and learning activities.

SCHOLARSHIP INFORMATION

If you need financial assistance, we have a limited number of partial scholarships available for those who qualify. It is our policy to keep our services accessible, so please contact the Program Director if you need assistance to help cover the cost of your lessons. ***A scholarship application with income information must be submitted at least three weeks prior to the session's start.**

ELIGIBILITY GUIDELINES AND DISCHARGE POLICY

Minimum Age: 5 years of age. There is no maximum age for services at Hearts & Horses, as long as the Participant has no physical or medical contraindications.

Weight Maximums: Due to safety considerations for staff, participants and volunteers, we may not be able to accept a participant into a riding program who weighs over 180 pounds.

Discharge Policy: Hearts & Horses strives to provide the safest possible conditions for participants, volunteers, horses and staff. The acceptance, and continued participation, of a participant in our program depends on the availability of instructors, volunteers and suitable horses and is based on our determination that we can safely accommodate the participant. Hearts & Horses adheres to precautions and contraindications for participants established by PATH Intl. Hearts & Horses retains the right to refuse any participant that we cannot safely accommodate. Participants must inform us of changes in mental health or medical status.

HEARTS & HORSES Therapeutic Riding Center • est 1997 • A PATH Intl Premier Accredited Facility • *2013 Non Profit of the Year*
163 North County Road 29 • Loveland, Colorado 80537 • Phone: 970.663.4200 • Fax: 970.663.3891 • www.heartsandhorses.org

EXPLANATION OF PROGRAM SERVICES, PARTICIPANT ELIGIBILITY AND POLICIES
KEEP FOR YOUR REFERENCE
Page 2 of 2

CANCELLATION POLICY

Hearts & Horses will hold classes inside to allow riding during adverse weather conditions. However, if any conditions arise that may create unsafe circumstances in which to hold class, classes may be cancelled. The safety of our participants, volunteers and equines is of upmost importance! ***Refunds or credits are not issued for classes that are cancelled for circumstances beyond Hearts & Horses control**. Classes may be cancelled due to the following:

- Larimer County is on accident alert status or weather conditions have the potential to deteriorate significantly by the end of class time.
- Extreme winds, heat (above 95) or cold (below 20)

SAFETY RULES & GUIDELINES - Our program has an excellent safety record. Please observe these safety rules.

- Due to safety considerations for staff, participants and volunteers, we may not be able to accept a participant into a riding program who weighs over 200 pounds. For those participants who weigh over 200 pounds, we offer equine assisted activities that focus on equestrian skills that are unmounted.
- Children must be supervised at all times; please do not leave children unattended or allow then to run and play loudly.
- Parents must stay on the property during their child's lesson.
- Dogs and smoking are not allowed on Hearts & Horses property.
- Do not visit the horses without permission and supervision, including entering the horses' stalls.
- Please observe quietly; your family members and friends are always encouraged to visit. When lessons are in progress or horses are out, guests are required to remain in the appropriate spectator area.
- Our horses and volunteers should be treated kindly - they work very hard for us all.
- Please drive slowly and park in designated areas.

ATTIRE AND EQUIPMENT

- Appropriate clothes are long pants and appropriate shoes for being around horses, preferably hard soled boots with a low heel. No sandals, flip flops, or Crocs please! Dress for comfort and according to the weather. Wear close-fitting clothing for safety as well as comfort. Loose or baggy clothing can get caught and tangled in equipment. No dangling jewelry is permitted.
- All participants are required to wear an ASTM/SEI approved Equestrian helmet when near/on horses. If you don't have your own helmet, Hearts & Horses will provide you with one. Should you choose to purchase your own, we can recommend several tack shops in our area.

ATTENDANCE AND PROMPTNESS

- Regular attendance is important! Please call if you cannot make your scheduled time as soon as possible (24 hours is ideal) so that we do not have horses, volunteers and instructors waiting for you. **Two "no call/no shows" in a session may result in you being asked to forfeit your spot to someone on the waiting list.**
- Please arrive on time or a few minutes early for your class. We will make every effort to accommodate each rider; however, late arrivals may result in not being able to ride that day. A rider that arrives 15 minutes of more after the start of their class will not be allowed to ride.

VOLUNTEERS

Hearts & Horses instructors are assisted by a team of incredible volunteers. They groom and tack the horses and help the Participant during class. Many volunteers help in other aspects of the organization, from facility maintenance, to office work, to fundraising. If you or someone you know is interested in volunteering, please refer them to the volunteer page on our website for further information.

THANK YOU!

Thank you for taking the time to review our policies and procedures, which are designed to provide our participants with a safe, effective and enjoyable environment. We encourage your input and suggestions. Please feel free to forward comments to Tamara Merritt, Associate Executive Director, at 970-663-4200 or email: tamara@heartsandhorses.org

******Please keep this information (pages 1-2) for your reference*****

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Changing Leads at Hearts & Horses
Equine Facilitated Learning

2022 Enrollment Packet – Changing Leads

Today's Date

Participant's Name Birthdate

Weight *(Please call if weight over 180 lb)* Height Sex

Ethnicity Race School

Current Living Situation (at home/foster,etc) IEP / 504 Status: ☐IEP ☐504-Plan

Guardian Parent / Caregiver / Self (*please circle*) Name

Email Phone

Address City Zip Code

Employer

Household Size Female Head of Household? ☐ Yes ☐ No

Household Income (Gross) ☐ $0-$15,000 ☐ $15,000-25,000 ☐ $25,000-35,000 ☐ $35,000-45,000
☐ $35,000-45,000 ☐ $45,000-55,000 ☐ $55,000-65,000 ☐ $65,000+ ☐ Decline to Answer

How did you find our services? (check all that apply)

☐ Professional reference (name:) ☐ Friends or Family (name:)
☐ Website ☐ Social Media ☐ Drive by ☐ Other (describe:)

Goals:

Personal

School

Family

Horsemanship

Riding Experience

Strengths and Abilities

Availability

Presenting Problems/Concerns

Primary Diagnosis

Secondary Diagnosis

Physical Disabilities/Limitations

Does your child have a history of starting fires or animal abuse? ☐yes ☐no

Does your child have an extreme fear of riding horses (more extreme than nervousness) ☐yes ☐no

EMERGENCY CONTACTS – IN THE EVENT OF AN EMERGENCY, HEARTS & HORSES SHOULD CONTACT:

Name _____ Relation _____ Phone(s) _____

Name _____ Relation _____ Phone(s) _____

Name _____ Relation _____ Phone(s) _____

Allergies to medications or foods _____

Current Medication(s)	Purpose	Possible Side Effects

HEALTH HISTORY -- PLEASE INDICATE CURRENT OR PAST CONCERNS IN THE FOLLOWING AREAS:

	No	Yes		No	Yes		No	Yes
Behavioral			Breathing			Hearing		
Emotional/Mental Health			Circulation			Vision		
Communication			Heart (Cardiac)			Pain		
Thinking/Cognition			Muscular			Trauma/Abuse/Neglect		
Digestion			Bone/Joint			Other		

If **YES** was checked above, please note further information here: _____

POLICY OF CONFIDENTIALITY

I agree to respect and observe privacy and confidentiality of the participants, volunteers, and donors of Hearts & Horses, Inc. and will not discuss or disclose any sensitive information about any person or their family.

Minor Participant Signature _____ Parent or Legal Guardian Signature _____

CLASS CANCELLATION POLICY

Hearts & Horses will hold classes inside to allow riding during adverse weather conditions. However, if any conditions arise that may create unsafe circumstances in which to hold class, classes may be cancelled. The safety of our participants, volunteers and equines is of upmost importance. ***Refunds or credits are not issued for classes that are cancelled for circumstances beyond Hearts & Horses control**. Classes may be cancelled due to extreme heat, wind or cold.

I have read and understand Hearts & Horses class cancellation policy: _____

Signature of Responsible Party

2022 Enrollment Packet – Changing Leads

CONSENT FOR RELEASE OF CONFIDENTIAL INFORMATION

The purpose of this disclosure is to assist in the progress of the participant's development and to ensure safety while participating in the Equine Facilitated Learning (EFL) plan and program. It is designed to allow us to exchange information with others involved in the participant's care to include behavioral and cognitive diagnoses, current medications, educational plans, and weekly updates.

I, _____ hereby authorize one or more of the following professionals
Parent or Legal Guardian of Minor Participant

☐ School Counselor _____ ☐ Therapist _____
Name and Phone Number Name and Phone Number

☐ Case Worker _____ ☐ Mentor _____
Name and Phone Number Name and Phone Number

to exchange the above information for _____ to Hearts & Horses, Inc.
Minor Participant

OR

☐ The participant does not work with any of the above. ☐ I do not authorize the above exchange of information.

This Authorization shall expire on December 31, 2018, unless it is revoked prior to the expiration date.
Pursuant to Federal Regulations, this information will not be forwarded to any other provider or agent.

_____ _____
Parent or Legal Guardian Signature Date

PHOTO POLICY

Photographs and video (including via cell phone) are **prohibited** at Hearts & Horses unless given permission from a program staff member at the time photos/video are being taken. If permission is granted, personal photographs and videos are not to be used for social media or commercial purposes. The Hearts & Horses blanket policy has been implemented to protect the privacy and rights of all participants. Thank you for strictly adhering to this policy.

Signature _____ Date _____
Signature of participant, parent or guardian (if participant is a minor)

PHOTO AND VIDEO RELEASE

Name of Participant _____

****Place Initials in ONE section below and sign at the arrow.**

Full Release: _____ (parent/guardian initials if consenting) I hereby grant Hearts & Horses, Inc., permission to take, or have taken, still and moving photographs and films including television pictures of the above named Participant, and consents and authorizes Hearts & Horses, Inc., its advertising agencies, news media, and any other persons interested in Hearts & Horses, Inc. 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 Hearts & Horses, Inc., including, without limitation the generality of the foregoing: newspapers, web sites, social media, television media, brochures, pamphlets, instructional materials, books, and clinical materials.

Partial Release: _____ (parent/guardian initials if consenting) I hereby grant Hearts & Horses, Inc. permission to take, still and moving photographs and films of the above named Participant. These images are to be given to the youth and/or to be used only by treatment center staff to track the participant's activities.

No Consent: _____ (parent/guardian initials) I do not give consent.

*⇨ ***SIGNATURE*** of Parent or Legal Guardian of Minor Participant _____ Date _____

2022 Enrollment Packet – Changing Leads (Page 4 of 4)

RELEASE OF LIABILITY

Name of Participant _____

WARNING

Under Colorado Law, an equine professional is not liable for an injury to or the death of a participant in equine activities resulting from the inherent risks of equine activities, pursuant to section 13-21-119, Colorado Revised Statutes.

RELEASE AND INDEMNIFICATION

I am aware that any activities involving horses are hazardous and I am voluntarily participating in these activities with knowledge of the danger involved, and hereby agree to accept any and all risks of injury, including death, and damage to property arising from participation. I **hereby promise not to sue, and hereby release**, to the fullest extent permitted by law, Hearts & Horses, Inc. and its agents, officers, directors, members, representatives, instructors, volunteers, coordinators, insurers, independent contractors, therapists and employees (collectively the "Released Parties"), from, **and hereby waive**, all claims of whatsoever kind that may be asserted against the Released Parties for personal injury and property damage arising from or in connection with participation in equine activities, and from the condition of the real property and personal property used in connection with such equine activities. By way of example, and not in limitation, this Waiver and Release includes releasing and waiving claims based upon: any negligent acts or omissions of the Released Parties and any other person; contract; warranty; premises liability; products liability; subrogation; contribution; and loss of consortium or loss of society.

I also hereby agree to indemnify, defend, and hold and save harmless the Released Parties from any claims, damages, expenses and costs incurred of whatsoever nature (including by way of example, and not in limitation, attorney fees and expenses), which may be made against or incurred by the Released Parties, arising from or in connection with my participation, including without limitation, any claims made by me or any other person.

It is intended that this Release and Indemnification shall release the Released Parties from, and waive, any and all claims, and indemnify the Released Parties, to the greatest extent allowed by law. In the event for any reason a Court determines that any portion of this Release and Indemnification is not enforceable, that provision shall be modified so as to give it the greatest effect allowed by law, or if it cannot be so modified shall be severed and the balance of the Release and Indemnification shall be given the greatest force and effect available under law. Furthermore, in the event that notwithstanding this Release and Indemnification, it is determined that any Released Party has any liability for any claim, in no event shall the liability exceed the amount of $500 in total aggregate for all claims arising from or in connection with my participation.

I acknowledge that by signing this document I am waiving important legal rights. I also acknowledge that the Released Parties would not allow me to participate in equine activities unless I have agreed to the waivers, releases, indemnifications and limitations contained in this Release and Indemnification. I acknowledge that the Released Parties are relying upon these provisions as a primary material consideration for allowing my participation in equine activities. I acknowledge and agree that the terms hereof are binding upon me, and my heirs, successors, representatives, insurers, and assigns.

If signing on behalf of another person, I represent and warrant to the Released Parties that I am the parent or legal guardian with the capacity to execute and make the foregoing waivers and indemnifications on behalf of such person; and I further acknowledge and agree that I am also personally bound by and make the releases and waivers as above set forth, and that I am jointly and severally liable for the indemnifications to the Released Parties.

Signature _____ Date _____

Signature of adult participant or parent/guardian/caregiver of minor participant