

“I JUST CONNECT WITH THE HORSES”: EQUINE ASSISTED LEARNING AS A TOOL
FOR DEVELOPING SOCIAL SKILLS AND RESILIENCY IN AT-RISK YOUTH

By

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Abstract

This study describes the experiences reported by at-risk youth in a four-day, equine assisted learning (EAL) program and evaluates the impact of the program on the youths' social skills and resiliency. A multi-strategy single group pre-test/post-test design was implemented at an EAL facility in Ontario. Two self-report instruments, the Social Skills Improvement System (SSIS) and the Resiliency Scales for Children and Adolescents (RSCA), were completed on two occasions: baseline and immediately following participation in EAL. Multiple paired-samples *t*-tests were computed to determine if there were any changes over time. Two participants were selected for exit interviews on the last day of the program.

The results of this work indicated that participation in EAL may positively influence social skills and resiliency development. The self-report scales achieved statistically significant improvement ($p < .05$) in perceived levels of: empathy, self-control, mastery, optimism, self-efficacy, support, sense of relatedness, social skills, and internalizing symptoms. Additionally, interviews with two participants in the EAL program revealed that participants enjoyed working with the horses, experienced increased self-awareness and self-confidence, felt safe and calm at the farm, and developed trusting bonds with the horses. Further investigation is recommended to determine the underlying mechanisms at work, in addition to whether the perceived gains are maintained and transferable to other areas of the participants' lives. The overarching goal of this research was to provide a foundation for empirical research on EAL within the Canadian context. It is hoped that the literature, methodologies, results, and recommendations compiled in this study will be used as a stepping stone for more research on employing EAL as a tool for social cognitive development.

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CHAPTER ONE

INTRODUCTION

Research in education has found that enhancing social skills development significantly reduces problem behaviours and significantly increases academic achievement, positive behaviours, and school bonding (Durlak, Weissberg, & Pachan, 2010; Moote, Smyth, & Wodarski, 1999). The development of socio-emotional and behavioural regulation may be critically important for the academic success of at-risk youth (Caprara, Barbaranelli, Pastorelli, Bandura, & Zimbardo, 2000). Studies have shown that children with higher levels of socio-emotional competence and pro-social behaviours, as well as those who show improvement in socio-emotional competence, are more likely to succeed academically (Berger, Alcalay, Torretti, & Milicic, 2011; Elias & Haynes, 2008). As such, socio-emotional competence and pro-social behaviour can be viewed as protective factors that contribute to students' resiliency (Elias & Haynes, 2008). Targeting these skills as part of an intervention could help students succeed not only socially and emotionally, but also academically. A recent meta-analysis of after-school programs in the United States indicated that promoting social skills in children and adolescents significantly increased students' self-perceptions, positive social behaviours, and academic achievement (Durlak et al., 2010).

In addition to after-school programs, other alternative interventions, such as animal assisted interventions (AAI), are becoming increasingly popular in educational, clinical, and therapeutic settings. The general purpose of AAI is to provide educational, motivational, or recreational opportunities that enhance the quality of life of participants (Shaw, 2013). Occasionally, a specific treatment plan is developed in partnership with a health professional, which is referred to as animal assisted therapy (AAT). Studies on AAT have shown that working

with animals such as therapy dogs can help build motivation, maintain focus, and increase task persistence, even when other interventions have failed (Granger, Kogan, Fitchett, & Helmer, 1998). When other interventions have failed, programs involving animals may produce positive results because of reduced social perception bias, reduced resistance to treatment, and reduced levels of anxiety (Siegel, 2004). Additionally, research on other AAI programs, such as animal visitation programs in hospitals or as part of psychotherapy, has found that the presence of animals elicits reductions in physiological and emotional distress, such as lowered blood pressure and heart rate (Friedmann, Katcher, Lynch, & Thomas, 1980).

Many researchers attribute the development of current practises in AAI to the York Retreat in England. In 1792, the Quaker Society of Friends founded the York Retreat as an alternative to the insane asylum, and incorporated gardening, exercise, and the presence of animals as part of the treatment regimen (Hooker, Holbrook Freeman, & Stewart, 2002). Research on the effects of AAI was not published until the 1960's, when child therapist Boris Levinson discovered that his dog seemed to calm his patients (Holmes, Goodwin, Redhead, & Goymour, 2012). Levinson began to investigate what he called *pet therapy*, consequently giving birth to the greater field of AAI (Geist, 2011).

Equine assisted activities and therapies (EAAT) are a specialized form of animal assisted interventions (AAI) that use horse-human interaction. EAAT are being implemented as alternative interventions for a number of populations, including at-risk youth, post-traumatic stress disorder (PTSD) patients, child abuse and neglect victims, and children with developmental disabilities (Esposito, McCune, & Maholmes, 2011; Schultz, Remick-Barlow, & Robbins, 2007; Smith-Osborne & Selby, 2010). These programs are typically used as

interventions to encourage social skills development, pro-social behaviour, and mental and physical health.

There are many different approaches to and applications of EAAT, as well as a multitude of terms and acronyms. The most important distinction is between equine assisted therapies (EAT), which typically require a licensed mental health professional, and equine assisted activities (EAA), which is an umbrella term for programs that employ any horse–human interaction (Trotter, 2012). Some methods, such as hippotherapy and therapeutic riding, are used to help persons with physical or intellectual disabilities learn traditional or adaptive mounted equestrian skills (Smith-Osborne & Selby, 2010). In order to be considered hippotherapy, the program regimen must include a physical, occupational, or speech therapist as part of the regular programming. Other EAA programs, such as equine assisted learning (EAL), use a team or individual facilitator to address cognitive, socio-emotional, and behavioural regulation issues (Bachi, Terkel, & Teichman, 2011). The focus of this thesis is on the application of EAL; however, in the literature review the term EAAT will be used to identify any program, whether therapy or activity-based, that involves interaction with horses. Where applicable, more specific terms will be identified and explained.

The use of EAAT has grown rapidly in North America and Europe despite limited research on the efficacy of these programs (Selby & Smith-Osborne, 2012). The physiological benefits of therapeutic horseback riding have been the focus for the majority of research related to EAAT (Land, Errington-Povalac, & Paul, 2001; MacKinnon et al., 1995; McGibbon, Benda, Duncan, & Silkwood-Sherer, 2009) with limited available literature on the mental health, cognitive, and behavioural factors that EAAT claim to address (Borioni et al., 2012; Davis et al., 2009; Kern et al., 2012).

In the field of EAAT, at-risk youth are typically identified as children or adolescents who are at-risk for academic failure or social difficulty as a result of behavioural issues, learning difficulties, or social adjustment concerns (Trotter, Chandler, Goodwin-Bond, & Casey, 2008). These youth may also have been identified as living in at-risk communities or families and have experienced child abuse or neglect (Schultz et al., 2007). At-risk youth often display additional social, emotional, or mental health issues: both diagnosed and undiagnosed (Kirby & Keon, 2006). For example, students who experience depressive symptoms report a reduced ability to perform academically, to concentrate in class, and to interact socially (Berg, 2006), and students with high anxiety levels display reduced academic performance (Kirby & Keon, 2006). As aforementioned, research on after-school programs has found that promoting socio-emotional competence can significantly reduce problem behaviours and increase academic achievement, positive behaviours, and school bonding (Durlak et al., 2010).

Purpose

Since EAAT is a new area of research, there is a limited amount of available literature. The need for validation is important for EAAT program coordinators, who often require evidence in order to receive funding, and for participants who need to know whether a program is potentially beneficial. As such, it is important for educators, parents, equine specialists, and therapists who work with EAAT to have access to literature supporting the effectiveness of these interventions. The present study begins to fill this gap in the literature and build a foundation for future work in this field. The purpose of the present multi-strategy study was to describe the experiences reported by at-risk youth in a four-day, activity-based equine assisted learning (EAL) program and evaluate the impact of the program on youths' social skills and resiliency. The present study sought to inform educators, youth workers, and equine professionals, in

addition to aiding the development of future research. Specific foci include participants' perceptions and descriptions of their experiences in the program, and the change in their self-reported social skills and resiliency over time. The study's key research questions were:

1. Does participation in the EAL program influence youths' social skills and resiliency?
2. What do the participants feel they have gained from their participation?
3. Are the gains, according to the participants, transferable to other areas of the participants' lives?

A multi-strategy method was implemented using a single group pre-test/post-test design. The present study used a concurrent complementarity design in which quantitative and qualitative methods were used to address separate study components (Robson, 2011). Specifically, the changes in self-report measures were used to answer the first research question, and interviews were used to explore research questions 2 and 3.

Overview of Thesis

This thesis is presented in five chapters: Introduction, Literature Review, Methods, Results, and Discussion. Chapter 2, the Literature Review, outlines the theoretical foundations of equine assisted activities and therapies (EAAT), and discusses research that has been conducted on typically developing youth and youth at-risk in the context of EAAT. In Chapter 3, Methods, the specific methods implemented in the present study are outlined, including: ethical considerations, sampling procedures, data collection techniques, and data analysis techniques. Chapter 4 outlines the results of this study and is divided into two sections: quantitative findings and qualitative findings respectively. In Chapter 5, Discussion, the findings are interpreted and implications of the present study are discussed in the context of the sample population, previous research, and theoretical foundations, in addition to highlighting the need for future research.

CHAPTER TWO

LITERATURE REVIEW

The present study reported at-risk youths' perspectives on participating in a four-day, equine assisted learning (EAL) program, and investigated the effects of the program on the youths' social skills and resiliency. In this field, at-risk youth are typically identified as children or adolescents who are at-risk for academic or social difficulty as a result of behavioural issues, learning difficulties, or social adjustment concerns (Trotter et al., 2008). The following literature review will begin by outlining the history and development of animal assisted interventions (AAI). The review will then concentrate on equine assisted activities and interventions (EAAT), focussing specifically on the theoretical foundations for EAAT and how these interventions can be used to foster resiliency and encourage pro-social behaviours. Pro-socialness includes cooperativeness, helpfulness, sharing, and being empathic towards others, and has been shown to have a strong positive impact on both academic achievement and peer relations (Caprara et al., 2000).

Animal Assisted Interventions: A Brief History

Animal assisted interventions (AAI) have become increasingly popular across North America (Selby & Smith-Osborne, 2012). The origins of AAI are often disputed; many researchers agree that the earliest documented use of AAI occurred in 1792 at the York Retreat in England. The Quaker Society of Friends founded the York Retreat as a more humane alternative to the insane asylum and incorporated gardening, exercise, and the presence of animals as part of the treatment regimen (Hooker et al., 2002). In the 1960's, American child psychiatrist Boris Levinson discovered that his patients seemed to calm down in the presence of his dog. Levinson began to investigate and experiment with what he called *pet therapy* (Geist,

2011). Since Levinson's discovery, researchers have sought to explain the intricacies of human-animal interaction, including the potential benefits for humans (Holmes et al., 2012).

Soon after Levinson's discovery, three veterinarians, Stanley Diesch, Robert K. Anderson, and William McCulloch, and psychiatrist Michael McCulloch began working together to find empirical evidence for the benefits of what they called the *human-companion animal bond* (Anderson, 2004). These were the founding members of the Delta Society, now called Pet Partners, the first professional organization to focus on developing, researching, and promoting aspects of the human-companion animal bond. The research initiated by Pet Partners has focused primarily on the potential health benefits of interacting with animals. Since cardiovascular disease was the first non-psychiatric disease upon which psychological and social factors were found to have an impact, it was also a logical starting point for investigating the impact of pet ownership (Jenkins, 1976). Initial epidemiological studies showed that pet owners had a lower mortality rate one year after discharge from a coronary care unit than non-owners (Friedmann et al., 1980).

Research on the impact of human-companion animal interaction has since expanded to many areas of health, including physical and mental health. In addition, the focus has shifted from pet ownership to the purposeful implementation of animal-assisted interventions (AAI). Typically, these interventions are divided into two types: *animal assisted activities* and *animal assisted therapies*. In order to be considered therapy, the animal interaction must be part of a specific treatment or intervention plan designed by a health professional, with the goal of accomplishing a set of outcomes (Shaw, 2013). The purpose of animal assisted activities is to provide educational, motivational, or recreational opportunities that enhance the quality of life of participants, but do not necessarily have a treatment goal (Kruger & Serpell, 2010). Both

activity-based and therapy-based applications of AAI are being implemented across North America, and the diversity of the programs is staggering, ranging from reading interventions to physical rehabilitation (Friesen, 2010).

Equine Assisted Activities and Therapies

One component of animal assisted interventions (AAI) includes equine assisted activities and therapies (EAAT). These interventions use horses as an integral part of the program, and include both activity and therapy-based programs (Selby & Smith-Osborne, 2012). The majority of research on EAAT has focused on the physiological benefits of therapeutic horseback riding (Land et al., 2001; MacKinnon et al., 1995; McGibbon et al., 2009) with a limited amount of published literature on the mental health, cognitive, and behavioural factors that some EAAT claim to address (Borioni et al., 2012; Davis et al., 2009; Kern et al., 2012). For the purpose of the present study, only studies that investigated the cognitive, behavioural, or socio-emotional impact of EAAT on youth will be discussed in detail, unless otherwise noted.

Therapies versus activities. There are many instances when the term *therapy* is applied to equine programs that would not be considered therapy under a medical designation, which defines therapy as a medical treatment of disease or curative psychiatric treatment (Kruger & Serpell, 2010). Some researchers believe this quasi-medical use of *therapy* can weaken its meaning by linking it to experiences that may provide transient relief or pleasure, but cannot claim to be effectively curing disease (Kruger & Serpell, 2010). Due to the ambiguous use of these terms in the literature, the umbrella term equine assisted activities and therapies (EAAT) will be used to identify any program, whether medical therapy or activity-based, that involves interaction with horses.

Where applicable, specific terms will be explained and differences between programs that incorporate medical therapy versus recreational activities will be identified. An example of a program that incorporates medical therapy is *hippotherapy*, a form of EAAT that is used to help persons with physical or intellectual disabilities learn traditional or adaptive mounted equestrian skills (Smith-Osborne & Selby, 2010). In order to be considered hippotherapy, the program regimen must include a physical, occupational, or speech therapist as part of the regular programming. Conversely, the present study investigated an activity-based equine assisted learning (EAL) program, which incorporated educational material on social cognition with recreational equine activities. For an example of an equine-based activity, see Appendix A.

Certifications and licensing. Several non-profit organizations such as the Equine Assisted Growth and Learning Association (EAGALA) and Equine-Facilitated Mental Health (EFMH) have attempted to set standards of practice for EAAT in addition to supporting research (Trotter et al., 2008). As of 2010, a total of 24 higher education institutes in the United States had been identified as offering classes in EAAT or were working in association with the North American Riding for the Handicapped (Brady, Hernandez, & Guay, 2011). The number of certification programs available has made it difficult to compare EAAT programs across studies. Additionally, many programs being offered in Canada and the United States do not have any specific EAAT certification, but are taught by certified equine professionals (e.g., horseback riding instructors). It is unclear how the development of so many independent organizations arose, as well as how this may affect the development of future programs or research conducted with these programs.

In general, these licensing organizations provide certification programs to ensure professionalism, safety, and quality in the field, and share the goals of promoting the field

through education, research, networking, and the creation of professional standards. The specific implementation of techniques tends to vary across organizations, with some focusing more heavily on cognitive behavioural therapy, adventure therapy, inquiry-based learning, or spiritual development. The EAL program in the present study was implemented by a certified riding instructor who also holds practitioner certification from Horse Boy, a technique that aims to improve social and cognitive function primarily for students with Autism Spectrum Disorders (ASD). The EAL program also incorporated strategies from an in-class sister program that was found to aid social skills development (Youth Diversion, 2014).

Theoretical Foundations of EAAT

A review of the literature comparing study design and program design in EAAT has revealed a number of frameworks to explain why EAAT may be effective for cognitive and behavioural change. Many of these frameworks originated as theories of animal assisted interventions (AAI) and are variations on theories of children's development, such as: Piagetian theory (Piaget, 1983), theory of mind (Wellman, 1990), ecological systems theory (Bronfenbrenner & Evans, 2000), socio-emotional and attachment theories (Bowlby, 1969), and theories of self-efficacy and self-regulation (Bandura, 1977, 1993).

These theories provide a foundation for hypothesis generation; however, some researchers have found them lacking in their ability to wholly explain the phenomenon of human-equine interaction. In an attempt to remedy this misconnection, Bachi et al. (2011) adapted Bowen's (1978) theory of relationship triangulation to explain the relationship among the horse, the therapist, and the client. Bachi et al. (2011) postulated that the therapeutic triangle allowed for the development of rapport between client and therapist that would not have been possible in a traditional therapy or recreational setting.

The framework for the present study combines the concept of the therapeutic triangle with Bandura's social cognitive theory (1993, 2001), focusing on aspects of resiliency, self-efficacy, and social skills development. Combining the therapeutic triangle with Bandura's social cognitive theory aligns with the EAAT program directives that cater to at-risk youth, and is the most applicable framework for investigating cognitive and behavioural change in activity-based programming. The frameworks discussed here do not reflect an exhaustive representation of the theories of EAAT; for a more expansive review of current theories see Fine (2010).

Therapeutic triangle. Horse specific programs often focus on the formation of a working relationship between participant and horse (Kruger & Serpell, 2010). This working relationship between participant and horse is then mediated by the instructor or therapist, and as Bachi et al. (2011) theorized, presents a triangle within the therapeutic setting, where the horse can become an allegory for the client's emotions or relationships. There are two main ideas that support the therapeutic triangle: the animal as a biofeedback mechanism and the animal as a social lubricant.

The animal as a biofeedback mechanism. This approach emphasizes that horses are particularly affected by differences between stated intent and observed behaviour, the latter of which will produce a response (Lentini & Knox, 2009). For example, if a person says that he/she is feeling calm and collected but he/she is actually nervous or tense (e.g., rapid heart rate, shallow breathing), the horse will respond to the observed behaviour. Horses are particularly affected by these discrepancies for three reasons. First, horses are herd animals which require cooperation with other members of the herd in order to survive, and domestic horses appear to have begun to perceive humans as members of their herds (Karol, 2007). Since horses cannot speak to us verbally, they rely on the physiological and behavioural cues that we provide, both

intentionally and unintentionally. To maximize the benefits of this relationship humans must become confident leaders, which necessitates the development of mutual trust, patience, and empathy with the horse (Bachi et al., 2011).

Second, due to their status as prey animals, horses have strong flight instincts that can be easily activated by overt aggression or anxiety (Burgon, 2011). As a result, horses are highly sensitive to body language and mood states and will provide instant feedback (Karol, 2007). For example, if you approach a horse using an aggressive body position (e.g., walking or running towards with arms raised above your head), the horse will respond with either a defensive position (e.g., ears laid back or turning rear end towards human) or will take flight (Parelli & Parelli, 2012). Many EAAT programs focus on understanding horse communication (e.g., body postures and behaviour), both for safety reasons and in an attempt to foster empathy and understanding. The sensitivity of the horse to “others” was demonstrated in a recent study that showed a simultaneous increase in rider and horse heart rate when the rider was experiencing anxiety (Keeling, Jonare, & Lanneborn, 2009).

Third, horses are perceived by participants as powerful, non-judgemental, and honest: qualities that, according to Bachi et al. (2011) and Waite and Bourke (2013), may facilitate an individual’s development of confidence, trust, and self-efficacy. Karol (2007) hypothesized that participants also develop empathy towards the horses and identify with their inherent need for security and safety, thus providing a metaphor for the participants’ feelings.

The animal as a social lubricant. Many animal assisted intervention (AAI) practitioners and theorists have noted that animals can serve as mediators of human social interaction, in addition to aiding the rapport-building process between participant and practitioner (Kruger & Serpell, 2010). For example, a number of studies found that college students perceive people as

being happier, friendlier, less threatening, and more relaxed when pictured with a friendly animal than when pictured without the animal (Rossbach & Wilson, 1992; Wells & Perrine, 2001).

Similarly, adult and adolescent psychiatric inpatients have been found to become less socially withdrawn after participating in a dog-walking program (Corson, Corson, Gwynne, & Arnold, 1977).

Interpretations of these and other studies propose that the animals provide a neutral, external subject on which to focus, and can stimulate conversation by their presence and unscripted behaviour (Fine, 2010; Levinson, 1969). Additionally, studies that have investigated the social-facilitation effects of animals have produced similar positive results across a range of special populations, including at-risk youth (Kruger & Serpell, 2010). In the EAAT field, Burgon (2011) demonstrated that at-risk youth in an equine assisted activity (EAA) program felt more comfortable talking about their past experiences when working with the horses, in addition to developing a sense of empathy towards the horses.

Social cognitive theory of self-regulation. Although the therapeutic triangle highlights the importance of interactions among horse, participant, and practitioner, it does not detail how to use this relationship to elicit cognitive and behavioural change. Using Bandura's (1991, 2001) social cognitive theory as a lens for viewing the therapeutic triangle, one can visualize how equine assisted activities and therapies (EAAT) can be used to foster change in at-risk youth.

Bandura's (1991, 2001) social cognitive theory of self-regulation is founded on the belief that there is a continuous, reciprocal relationship among a person's cognitions, behaviour, and the environment. The goal of using a social cognitive approach in therapy or behaviour management is to bring about positive changes in a person's self-perceptions, such as self-efficacy, motivation, and personal agency (Kruger & Serpell, 2010). Self-efficacy is described as

a judgement of personal capability, with Bandura and Locke (2003) postulating that self-efficacy beliefs are the central motivator among the many mechanisms of human agency. Regardless of what other factors can serve as motivators, all factors are grounded in the belief that a person has the capability to produce desired effects (Bandura, 1977).

One potential benefit of working with horses is the ability for students to learn about the cause-and-effect of their behaviour (both implicit and explicit), which encourages the development of self-monitoring (Bandura, 1991; Brooks, 2001). Self-monitoring is critical to the development of self-efficacy and regulation, since those who attend to the cause-and-effect of their actions are more able to influence their own motivations and actions by setting realistic goals and evaluating their progress toward them (Bandura, 1991). In an attempt to formulate a unifying theory of behavioural change, Bandura (1977) proposed that self-efficacy plays a central role in forming healthy self-regulation, and that a successful cognitive or behavioural intervention should address at least one of four factors that influence self-efficacy: mastery experiences, vicarious experiences, social persuasion, and physiological and emotional states.

Using Bandura's (1977, 1991) model, EAAT can incorporate aspects of all four factors. EAAT provides opportunities for students to overcome problems and obstacles (mastery experiences), and allows for observation and modeling of other's successes (vicarious experiences). For example, tasks are approached on a step-by-step basis to help foster a sense of mastery. When a new task is presented, a program volunteer or advanced student will model the task while other students are encouraged to observe and question (Westerman, Hargreaves, Westerman, & Verge, 2012).

The group-facilitation format of most EAAT programs also provides an opportunity for participants to improve through social persuasion and encouragement. This can be seen as early

as the first session, when students formulate individualized goals for the program. During the program, instructors, volunteers, and other students provide positive verbal feedback during tasks (Westerman et al., 2012). Additionally, EAAT can provide conditions that allow for the exploration of situational stressors, participant moods, previous experiences, and perceptions of experiences (physiological and emotional states). Research on at-risk youth has found that efficacy and pro-socialness are strongly related to student achievement, which highlights the importance of addressing efficacy and pro-socialness in prevention programs for youth at-risk of social or academic difficulties (Bandura, 2001; Caprara et al., 2000; Clanton Harpine, 2008).

Using Bandura's social cognitive theory of self-regulation to interpret the therapeutic triangle highlights the importance of using the horse as a biofeedback mechanism to inform students of the effect of their behaviours (i.e., self-awareness and regulation). Additionally, the social lubrication effect of the horse can help to build rapport between students and practitioners, thus providing students with the opportunity to learn vicariously through others while learning how to master new experiences in a safe but challenging environment.

Many of the factors that this framework addresses are considered to be protective factors. Protective factors are those factors that are able to enhance positive outcomes and reduce the likelihood of negative consequences of exposure to risk, such as positive relationships, coping, self-efficacy, self-esteem, and support (DeLuca et al., 2010; Walsh & Eggert, 2007). Targeting these areas in EAAT can potentially help to foster resilience in at-risk youth (Rak & Patterson, 1996; Trotter, 2012)

Resiliency and social skills development. Resiliency describes the characteristics of at-risk youth who are able to succeed despite adversity (Edwards, Mumford, & Serra-Roldan, 2007). Research indicates that resiliency in at-risk youth originates from three primary sources,

or protective factors: (1) within-child factors (e.g., self-efficacy, communication), (2) within-home factors (e.g., parenting, attachment) and (3) outside-home factors (e.g., school environment, extra-curricular activities) (Edwards, Mumford, & Serra-Roldan, 2007; Rak & Patterson, 1996). Targeting any of these three sources in prevention programs, such as EAAT, can help to provide coping resources and build resiliency in at-risk youth.

Within-child factors, such as self-efficacy, appear to be the most malleable and attainable protective factors that interventions can address. Indeed, self-efficacy has been described as “the first essential component of any successful preventative group intervention program,” (Clanton Harpine, 2008, p. 10). As outlined above, EAAT uses the therapeutic triangle to address many within-child factors of resiliency, including self-efficacy, self-regulation, and communication.

In addition to addressing within-child factors, EAAT can also address outside-home factors and in some cases, inside-home factors (Schneider, 2012). Research has shown that adult role models and caring relationships outside of the family are highly beneficial for at-risk youth (Laursen & Birmingham, 2003). EAAT programs are directed by a team of adults, such as therapists or volunteers, who may be viewed as positive role models. As aforementioned, animals can act as “social lubricants” by reducing anxiety and stress, and thus helping to develop caring relationships between students and EAAT leaders (Jalongo, Astorino, & Bomboy, 2004).

Previous Research on Equine Assisted Activities and Therapies

Equine assisted activities and therapies (EAAT) have been used in a wide number of populations. Using EAAT with at-risk youth has been receiving increased attention from both the media and academia in recent years (Waite & Bourke, 2013). Addressing social, emotional, or behavioural difficulties faced by at-risk youth in programs outside of formal education may help to improve quality of life and encourage academic and social performance for at-risk youth

(Trotter et al., 2008; Waite & Bourke, 2013); however, efficacy research on the psychosocial benefits of EAAT on youth is limited. Studies have used a wide array of methodological approaches which have produced mixed results.

Recently, Holmes et al. (2012) investigated if EAAT had an effect on participants' anxiety and self-esteem over time. The study sought to explore the impact of an activity-based equine program implemented with trained equine professionals and without a trained therapist. Youth participated in four 3-hour EAA sessions ($n = 11$, ages 12–14 years) and completed the Spence Children's Anxiety Scales (SCAS) at baseline and immediately following the three sessions. Holmes et al. compared the means across each time-point using a Friedman's repeated measures ANOVA, which revealed a significant decline in average anxiety scores from baseline to time four, $\chi^2(3) = 10.89, p < .05$. Post hoc tests revealed a significant difference between anxiety levels between sessions 1 and 2 ($p < .05, d = .56$) and sessions 1 and 3 ($p < .05, d = .74$). This indicated that the EAAT program had a medium sized effect on anxiety after as little as one 3-hour session. There was no significant change in self-esteem, as measured by the Rosenberg self-esteem scale. This study indicated that EAA, even in the absence of a certified therapist, had a positive effect on participants' anxiety levels; however, the small sample size limited the generalizability of the results.

Using the EAGALA model, Schultz et al. (2007) studied a sample of 63 children (37 males, 26 females) who were referred to a psychotherapist for various behavioural and mental health difficulties. Twenty-five of the participants had a history of inter-parental violence, 17 participants had a history of abuse and/or neglect, 12 participants had a history of sexual abuse, and 20 participants had at least one parent with a history of substance abuse. Participants attended an 18-month equine facilitated psychotherapy (EFP) intervention, and the number of

sessions attended ranged from 1 to 116. Participants who attended six or more sessions were included in the analyses ($n = 59$, ages 4–16 years). The children who had previously experienced abuse or neglect were most responsive to the EFP intervention, and showed a significant improvement in Global Assessment of Functioning (GAF) scores ($p < .001$). When stratified by age, the youngest children (< 8 years of age) showed the greatest improvement in GAF scores. There was also a significant correlation between the percentage improvement in GAF scores and the number of EFP sessions attended ($r = .73, p < .001$). This study demonstrated that children with a history of abuse or neglect can benefit from short-term EFP, and continue to improve the more they participate; however, the long term effects remain to be determined.

The positive effects of participating in an equine program for youth who have been abused was confirmed in a recent program evaluation study (Kemp, Signal, Botros, Taylor, & Prentice, 2014). Kemp et al. (2014) evaluated an equine assisted therapy (EAT) program for youth with a history of sexual abuse, and found significant improvement in behaviour and reductions in symptoms of depression. These improvements were quite robust with effect sizes ranging from medium to very large (.58 to .90).

The present study sought to build upon the findings of Schultz et al. (2007), Holmes et al. (2012), and Kemp et al., (2014) by identifying areas of resiliency that can be addressed using EAAT. Both Holmes et al. (2012) and Schultz et al. (2007) found improvement in some areas of functioning, but did not address other aspects of resiliency or social skills development, such as self-efficacy or communication. Determining the impact of EAAT on these areas will help clarify whether EAAT can be used as an adjunctive aid to the education system. The present study evaluated quantitative measures of resiliency and social skills development in addition to

interviewing the youth about their experiences in the program, which helped to contextualize any evidence found by the self-report scales.

Bachi et al. (2011) investigated the effects of equine facilitated psychotherapy (EFP) on self-image, self-control, trust, and life satisfaction in a sample of at-risk and offending youth in a residential treatment facility in Israel. The researchers chose to evaluate self-image, self-control, and trust because previous research suggested that these factors are particularly problematic in the population of interest. Fourteen youth were assigned to the EFP group, and 15 were assigned to a control group, 6 of whom remained in various psychotherapy programs, and 9 youths were not undergoing any therapy other than living at the facility. There were no significant differences on any of the self-report measures between the two control samples.

The number of 50-minute EFP sessions ranged from 14 to 26 across a seven month treatment period. Bachi et al. computed a repeated measures multivariate analysis of variance on each of the four scales and found no significant results on any of the measures ($p > .05$). The study did not describe the specifics of the EFP program, so it is unclear if the program actually addressed these or other issues; however, the framework did suggest that EFP should have an impact on these areas. A one-year follow-up suggested a possible trend towards lower recidivism rates for individuals in EFP; however, future studies are needed to confirm this statistically. Bachi et al. argued that a mixed or multi-methods study could provide a more balanced evaluation of the effectiveness of EFP, in order to determine what factors are actually addressed. The present study addressed these concerns by implementing a multi-strategy study that used both quantitative and qualitative methods.

In contrast to studies focussed upon clinical populations, Burgon (2011) conducted a participative ethnography on the experiences of at-risk youth in an equine assisted activity

(EAA) program by following seven at-risk youth (five females, two males) over a period of two years. After a two-year testing period, Burgon found that many protective factors, such as self-confidence, self-efficacy, and empathy, seemed to be fostered and developed during the intervention. Burgon's results indicate that long term EAA may have the potential to aid in the development of protective factors for some at-risk youth. The current study expands on Burgon's study by using multi-strategy approach to help determine whether a short-term EAAT program (i.e., four days) can be used as a viable method for building resiliency and social skills.

More recently, Waite and Bourke (2013) analyzed how an activity-based EAL program sought to engage at-risk youth. Waite and Bourke (2013) conducted interviews with 40 at-risk youth and 9 significant others after they had participated in the first session of EAL. The program focused on developing social skills and was similar to the program in the present study. Waite and Bourke (2013) found that participants were very enthusiastic about working with the horses and remained engaged throughout the entirety of the first session. The researchers proposed that the non-verbal process of developing a non-judgemental relationship with a horse seemed to appeal to the youth. They proposed that the large physical size of the horses, which can induce fear and wariness in participants, encouraged the young people to actively participate. After only one session, the participants described a positive emotional connection with the horses, which made them feel good, safe, and trustworthy. It was not clear if the participants continued with the program after the first session; however, the study provided a snapshot of the initial levels of engagement that can occur in EAL program. The present study sought to confirm these results by including a subscale on level of engagement and by exploring participants' feelings of engagement and connectedness with the horses.

In 2008, Trotter et al. reported a quasi-experimental study investigating the efficacy of group equine assisted counseling (EAC) compared to a traditional, school-based counseling program. Students were considered to be at-risk as a result of serious behaviour issues, learning difficulties, or social adjustment concerns, and were invited to participate by their school counselors. In this pre-/post-test comparison study, 164 participants formed a non-random convenience sample (102 males, 62 females) and were self-allocated to either the EAC treatment group ($n = 126$) or the comparative school-based program ($n = 38$). The EAC program was based on the EAGALA model for equine facilitated psychotherapy. Due to logistical problems, data for the school-based program were only collected for the second semester of the treatment period instead of both semesters. This delay resulted in a disproportionately large EAC treatment group, for which both semesters were covered.

Trotter et al. (2008) investigated whether or not EAC would have a positive impact on at-risk youth and if it would be a more effective intervention for this population than traditional, school-based programs. This was evaluated using the Parent-Rating Scale and Self-Report Scale of the Behavioural Assessment System for Children (BASC), in addition to a psychosocial session form (PSF) created by Trotter to track weekly client progress. The BASC is a valid and reliable measure of emotional concerns, challenging behaviours, and adaptability of children and young adults (Reynolds & Kamphaus, 2004). The measure also assesses anxiety, depression, and somatization. Using a broad-spectrum measurement tool was one of the strengths of this study, as it allowed for an evaluation of numerous psychosocial, behavioural, and adaptive factors. The present study emulated the study by Trotter et al. by employing broad-spectrum measurements of resiliency and social skills development.

Trotter et al. (2008) made *a priori* planned comparisons using within-group paired sample *t*-tests to evaluate the efficacy of both interventions independently on each subscale of the BASC. The *t*-tests indicated significant improvement ($p < .05$) on 17 subscales of behaviour following the EAC intervention, and significant improvement ($p < .05$) on 5 behaviour subscales following the school-based intervention. Using the pre-test scores as a covariate, between-groups analyses of covariance were conducted on each subscale to compare the interventions and evaluate overall differences. The EAC treatment group displayed significantly larger improvements than the school-based intervention group on 7 of the 34 behaviour scales ($p < .05$): self-reports of social stress and self-esteem, and parent reports of behavioural symptoms, externalizing problems, hyperactivity, aggression, and conduct problems.

As an additional measure of change, Trotter et al. (2008) conducted repeated measures ANOVAs on the PSF scores across the 12 EAC sessions. The analyses found statistically significant improvement in all three scales: (a) overall behaviours, $F(1, 11) = 10.12, p < .001$, (b) increased positive behaviours, $F(1, 11) = 14.81, p < .001$, and (c) decreased negative behaviours, $F(1, 11) = 11.60, p < .001$. Using Burgon's (2011) approach to resiliency theory, Trotter et al. showed that EAC can foster factors of self-concept that have been found to function as protective factors for at-risk youth.

Additionally, participants in the Trotter et al. study preferred to attend EAC sessions over traditional school-based counseling sessions because they found it to be less stigmatizing than attending school-based counseling. This aligns with other research indicating that students enrolled in animal-assisted therapies are often nonresponsive to other interventions, or unwilling to attend traditional therapies (Siegel, 2004; Waite & Bourke, 2013). Interventions that incorporate animals may be more successful than traditional interventions because of reduced

social perception bias and resistance to treatment, and increased communication and control (Siegel, 2004). Trotter et al. (2008) suggested that future research use a combined quantitative and qualitative approach to better describe and understand the experiences of participants. The present study attempted to confirm the results of Trotter et al. (2008) by using broad-spectrum measurements, and sought to build upon the results by including qualitative reports of the participants' experiences and perceptions in the EAAT program.

Kaiser, Spence, Lavergne, and Vanden Bosch (2004) examined whether or not a five-day therapeutic riding camp would reduce youths' anger and increase perceived quality of life and perceived self-competence. Sixteen able-bodied children (12 females, four males) ages 7-17 years participated in a five-day riding camp, returning home each evening. Activities ranged from riding lessons to horse-related classroom activities. The structure of the program was similar to that of the present study, although the present study did not include any riding lessons. Three instruments were administered prior to riding at baseline, and following riding on Day 5. Paired samples *t*-tests were computed for each subscale and corrected for multiple comparisons using the Bonferroni correction method. After five days of riding camp, the total score on the Children's Inventory of Anger significantly decreased, $t(15) = -3.14, p < .05$, in addition to three subscales: physical aggression, peer relationships, and authority relations. There was no significant change in the frustration subscale, quality of life or perceived self-competence.

The participants in the Kaiser et al. (2004) study did not score in the clinical range for anger prior to participating in the camp, nor were they considered to be at-risk. These findings indicate that therapeutic riding may provide benefits for typically developing individuals in as few as five days. In combination with the findings of Trotter et al. (2008), it appears that EAA in

both long and short-term contexts can have a positive impact on the psychosocial functioning of youth, which the present study sought to confirm.

Summary and Implications

Previous research on equine assisted activities and therapies (EAAT) with at-risk youth has found mixed results. While some studies showed improvement in functioning or behaviour, others found no significant changes. The data from the present study will contribute to the literature by providing contextualized evidence for the potential efficacy of activity-based equine assisted learning (EAL) in addition to an in-depth description of how youth explain their emotional perceptions and experiences during an EAL intervention. As Kazdin (2010) highlighted, this would contribute to our understanding of how the program works as well as providing information for future program development.

Previous research has focused largely on the medical psychotherapy model, which limits interpretation to measures of efficacy in terms of medical or psychological health. Although it is important to determine whether or not these programs can improve psychological functioning, it is also beneficial to understand the applicability of these programs as adjunctive aids to the education system. The present study will be using an educational psychology perspective, which will allow me to describe the learning experiences of youth in a program, in addition to whether or not it helped youth to build social skills and resiliency. Pro-socialness, as demonstrated by having high levels of cooperativeness, helpfulness, sharing, and being empathic, has been found to predict subsequent levels of academic achievement (Caprara et al., 2000). Identifying areas of learning and positive experience within the EAL program can be beneficial for program refinement and future efficacy research. Very few studies have looked at activity-based EAL programs that focus specifically on building social skills strategies and resiliency in at-risk

youth. The present study sought to understand whether or not EAL can encourage the development of pro-social behaviours and resiliency outside of the classroom context.

CHAPTER THREE

METHODS

Rationale and Research Design

The present study reported the perspectives of at-risk youths in an activity-based equine assisted learning (EAL) program and evaluated the impact of the program on the youths' social skills and resiliency. The study posed the following research questions:

1. Does participation in the EAL program influence youths' social skills and resiliency?
2. What do the participants feel they have gained from their participation?
3. Are the gains, according to the participants, transferable to other areas of the participants' lives?

The present study employed a single group pre-test/post-test design using a multi-strategy approach. Due to the lack of a control group, single group designs can be susceptible to internal threats to validity, since it is more difficult to control for extraneous and confounding variables. Including only one group also threatens the external validity by compromising the generalizability of the results to other groups (Robson, 2011). Additionally, the lack of a control group can threaten the reliability of measurements, since it is harder to control for error due to changes in the environment or participants that are not a result of the intervention. Although single group pre-test/post-test experimental designs can be difficult to interpret, the novel and exploratory nature of the present study indicated that a small-scale study could be implemented prior to carrying out a more robust experimental design.

Unlike many multi-strategic designs, I did not mix both qualitative and quantitative data to answer the same question (e.g., triangulation). Instead, I used a concurrent complementarity design in which quantitative and qualitative methods were used to address separate study

components (Robson, 2011). Specifically, quantitative methods were used to answer the first research question, and qualitative inquiry was used to explore the last two research questions. This is a concurrent design since the quantitative phase of the study did not inform the qualitative phase of the study or vice versa (Onwuegbuzie & Leech, 2006). Greene, Caracelli, and Graham (1989) noted that a concurrent complementarity design is beneficial for measuring different but overlapping facets of a phenomenon. In addition, Robson (2011) suggested that certain multi-strategy designs are able to deal with complex phenomena and the wide range of perspectives found in day-to-day situations. For the present study, this multi-strategy approach allowed me to determine if participation in an EAL program had an influence on the youths' social skills and resiliency while concurrently exploring whether the youths felt they had gained something from participating in the EAL program. Additionally, introducing a qualitative phase to the present study helped to reduce internal threats to validity, such as history, by speaking with the participants about what else they had participated in during the course of the program.

As highlighted in the literature review, the results from previous research on EAL are mixed (Smith-Osborne & Selby, 2010). In some cases, these ambiguous findings are a result of study limitations such as small samples or inconsistent program implementation; however, some researchers suggested that qualitative data, especially interviews, would be beneficial for developing an understanding of participant-perceived change (Bachi et al., 2011; Kemp et al., 2014; Schultz et al., 2007). Using a multi-strategy approach has allowed me to formulate a more robust and grounded interpretation of the data.

Quantitative Methods

The Social Skills Improvement System (SSIS), designed by Gresham and Elliott (2008), and the Resiliency Scales for Children and Adolescents (RSCA), designed by Prince-Embury

(2007), were administered to address whether EAL influences youths' social skills and resiliency. The SSIS was used to evaluate changes in social skills (e.g., communication, cooperation) and competing problem behaviours (e.g., bullying, externalizing problems) – all of which were targeted areas of the EAL program under examination. The RSCA was used to identify any changes in core personal qualities of resiliency in the children and adolescents. The RSCA and SSIS are written at a third-grade reading level for easy accessibility for participants. Quantitative methodology is most appropriate for these questions since they address aspects of efficacy and change.

Qualitative Methods

Participant reported gains were explored through qualitative inquiry. Two students were selected to be interviewed. The interviews were transcribed verbatim and coded. Stake (2010) described qualitative inquiry as a method for learning about particulars, building professional knowledge, and understanding individual experiences. Although experimental designs using random assignment to groups are often considered the gold standard for intervention studies, Kazdin (2010) wrote that, in addition to randomized control trials or quasi-experimental designs “qualitative research can examine the experiences of those who go through an AAT [animal assisted therapy] and thematic ways in which their lives are changed...” (p. 542). The implementation of a well-structured multi-strategy design would provide strong multidimensional evidence for the effectiveness of EAL (Bergman, 2008).

Data Collection

Site Selection

The present study was conducted in Southern Ontario at Willow Brook Farm. The farm conducted a four-day (9 a.m. to 4 p.m.) equine assisted learning (EAL) leadership program for

youth over two summers. Willow Brook Farm worked in partnership with a youth diversion program to develop the EAL program. The youth diversion program is run by a charitable organization dedicated to helping youth make positive changes and choices in their lives in order to become valuable members of their communities. Current programs at the youth diversion centre include a social skills development program on which the EAL program is based and an on-site alternative to home suspension programs.

Willow Brook Farm conducted the EAL program in the first week of July 2013 and the first week of July 2014. The owner/instructor of Willow Brook Farm and the director at the youth diversion program provided verbal and written agreement to participate in the present study. The youth diversion program and Willow Brook Farm helped recruit interested pupils for the programs and the present study. Ethics approval from the youth diversion program was granted following approval from the General Research Ethics Board (GREB). Willow Brook Farm did not require official applications for ethical clearance.

Recruitment and Participant Selection

Ethical clearance was obtained from Queen's GREB prior to conducting the present study. Letters of information and consent forms were distributed to interested students by the director of the youth diversion program and the instructor at Willow Brook Farm two weeks prior to the start of the present study. Youth were informed that participation in the research was not a requirement for participating in the EAL program. Completed forms were returned to the director and placed in an envelope, which I picked-up in person. Thirteen children and adolescents between the ages of 11 and 16 years (9 females, 4 males) were recruited for the current study and formed a non-random purposive sample. The youth diversion program recruited 15 participants who were interested in participating; however, only 11 children

attended the camp. Willow Brook Farm recruited 2 additional participants. The participants were self-identified as at-risk for academic or social difficulties through their participation in the youth diversion program or through their enrollment in the EAL program. Individuals were required to provide parental or guardian consent in addition to providing their own assent to participate in the study.

Withdrawal Procedure. Participants and parents or guardians were informed of their right to withdraw from the study on the consent form that was completed before the study began. Participants were also informed verbally that they could withdraw from the study at any point, without reason, and that this did not have an effect on their standing in the equine program or the youth diversion program. The participants were told that they did not need to answer questions that made them feel uncomfortable. If a participant chose to withdraw from the study, he or she would have been informed that he or she could also request to remove any or all of his or her data at any time. If a participant, or a participant's parents or guardians, chose to withdraw from the study, the participant or the participant's parents or guardians were asked to contact the researcher or the research supervisor and request withdrawal. No participants withdrew from the present study.

Materials and Procedure

Survey data were collected by the researcher in small groups on the first day of the program (baseline) and four days later on the last day of the program (time two). The SSIS, RSCA, and demographics questionnaire were completed at baseline, and all except the demographics questionnaire were completed again at time two. Completion of the surveys took approximately 30 minutes per time point, for a total 60 minutes of participation. Due to time constraints, two participants, one male and one female, were randomly selected for individual

30-minute interviews. Participants who agreed to participate in the interview portion of the study had a total of approximately one and a half hours of participation. Participants who agreed to provide interviews were contacted through their parents to set up interview times either the week following completion of the EAL program, or on the last day of the program. Interviews were conducted at Willow Brook Farm.

Equine Assisted Learning Program. The Equine Assisted Learning program (EAL) was four consecutive days, from 9 a.m. to 4 p.m., and integrated aspects of the in-class youth diversion program with equine activities designed specifically to address social skills and resiliency. The in-class program has been found to be an effective intervention for social skills development (Youth Diversion, 2013). The EAL program used experiential education to “reinforce basic life skills, social skills, and cognitive skills that will enable young people to get started on sound decision making, goal setting, and building a healthy self-image,” (Youth Diversion, 2013).

The program was led by a certified riding instructor and two trained volunteers including myself and one Willow Brook staff member. To ensure student safety there was one volunteer handler per horse during all equine activities. The initial session provided an overview of the program and introduced the program staff. During this session participants were given an introduction to the farm and learned about horse safety, horse behaviour, and communication with horses. Group expectations and rules were clearly outlined, and each participant began to develop his or her individualized goals. Each participant was asked to choose a pseudonym (e.g. Merry Mary) that he or she used throughout the program. This was intended to help instill a sense of ownership in the program. In the initial session, horse-based activities included simple

approach and touch exercises such as grooming. Following these activities, participants debriefed through a focus group session in order to discuss their experiences.

The rest of the days followed a predetermined format (see Appendix B), all of which included at least one equine-assisted learning activity (for examples, see Appendix A). In this program, participants did not learn how to ride; instead, all sessions involved un-mounted horse activities (i.e., performed on the ground). Session objectives included, but were not limited to: leadership skills, goal setting, self-efficacy, communication, problem solving, conflict resolution, and anger management. The horses used in this program were specially selected by the program directors. All horses were safe, quiet, and “bomb-proof.” Most horses were older “school masters” who had been used in lesson or therapy programs for many years. Two of the horses used in the program were miniature horses (80–95 cm tall at the shoulder).

Instruments

Social Skills Improvement System. The Social Skills Improvement System (SSIS) was developed by Gresham and Elliott (2007) and is an evidence-based, multi-tiered assessment system. The SSIS was designed specifically as a tool to monitor intervention progress, and consists of three rating scales: social skills, competing problem behaviours, and academic competence. Rating scales are available in either the teacher form, parent form, or student form. The present study used the student form. The student self-report scale has a high level of internal consistency, $\alpha = .95$ (Gresham, Elliott, Vance, & Cook, 2011). The student form of the SSIS takes approximately 15 minutes to administer.

Resiliency Scales for Children and Adolescents. The Resiliency Scales for Children and Adolescents (RSCA) was developed by Prince-Embury (2007) and is a multidimensional set of scales that provides a profile of personal strengths. The RSCA consists of three global self-

report scales (sense of mastery, sense of relatedness, and emotional reactivity) and 10 subscales. The RSCA has a high level of internal consistency, $\alpha \geq .94$. This set of scales was designed to benchmark and monitor responses to interventions systematically in terms of strength enhancement and symptom reduction. The test-retest stability coefficients ranged from $r^a = .86$ (sense of mastery and sense of relatedness) to $r^a = .88$ (emotional reactivity). The full-form RSCA takes approximately 15 minutes to administer.

Exit Interviews. Upon completion of the program, I conducted semi-structured interviews with two of the participants. The interviews took approximately 30 minutes and were conducted at Willow Brook Farm. The interviews focussed on how each participant perceived and described his or her experiences in the EAL program. Participants were reminded of the confidentiality of the interviews and that they were able to withdraw all or part of the data without reason or consequence. In addition, participants were reminded that the interviews would be audio-recorded and that the interview would be transcribed verbatim. Participants were asked during the interview if they had any questions pertaining to the interview itself or if they needed clarification on a question.

Questions were a combination of structured (e.g., Would you say this program has been highly effective, somewhat effective, or not at all effective?) and semi-structured (e.g., What has been the most enjoyable aspect of this program for you?) and addressed aspects of each research question. The questions were developed using Burgon's (2011) model and building from questions on the RSCA. Participants were asked specifically about what they felt they had learned, whether or not the program had an effect on their self-efficacy beliefs, what aspects they enjoyed the most, and whether or not they had used the targeted strategies at home or school (see

Appendix D for sample questions). The interview questions were reviewed by the program instructor prior to study implementation to check for bias, length, clarity, and relevancy.

Considerations for interviewing adolescents. There are some considerations to be made when interviewing children and adolescents. Even though some researchers feel that children are not reliable sources of information, other research has shown that children and adolescents are often the best providers of information about themselves when particular considerations are addressed during interviews (Docherty & Sandelowski, 1999). As Kazdin (2010) noted, qualitative methods such as interviews are an important tool for describing the thematic ways in which participants' lives are changed.

Recording the participants' individual voices is an integral part of this study, and first-person interviews are thus required. The interviews were conducted in a room that considered the confidentiality of the participant as well as the safety of the participant and the interviewer. As such, the interviews were conducted in a room with the door open as a safety precaution for both researcher and participant. To ensure that the participants understand what was being asked of them, I briefed each participant at the beginning of the interview about what would occur and what was expected of him or her. Participants were able to request a familiar instructor or volunteer to also be present during the interview so the participant felt more comfortable, and I began the interview with free recall questions to encourage the participant to discuss his (or her) experiences (Docherty & Sandelowski, 1999). At the end of the interview, and occasionally during, I clarified a participant's response by repeating it back to him or her. This gave the participant the opportunity to correct or contribute more to the response. Participants were also given the contact information of a counselor at the youth diversion centre, as well as the research supervisor, in case they felt uncomfortable after the interview.

Data Storage

Due to the amount of data being collected, computer software was used to help manage and analyze the data files. The survey answers were typed into IBM–SPSS and the original handwritten surveys were stored in a locked filing cabinet. All identifying information was removed from the handwritten surveys, with the exception of the participants' numbers, which were assigned on the first day. The legend that links participants' numbers to their real names was kept separate from all other data, and was only accessible to the primary researcher and research supervisor. It was necessary to keep a participant legend in case a participant wished to withdraw his or her data, as well as to enable matching baseline and follow-up data for each participant. For the interviews, all identifying information was removed from the transcribed data, with the exception of the participants' pseudonyms, which were assigned at the start of the interviews. All data files were encrypted.

Analysis

Quantitative Analysis

In order to address whether the EAL program had an impact on youths' social skills and resiliency, the results of the SSIS and RSCA were evaluated using paired samples *t*-tests. The magnitude of observed differences in the variables for each subscale was assessed using Cohen's *d* measure of effect size. Cohen's criteria for large ($d \geq .80$), medium ($d = .50 - .79$) and small ($d = .20 - .49$) effects was used to interpret the results. All inferential tests were evaluated at $\alpha = .05$. Due to the exploratory nature of the present study, Holm's sequential Bonferroni correction for multiple comparisons was computed within each group of related subscales (e.g., all subscales under mastery). The Holm sequential Bonferroni method is more powerful than the standard Bonferroni correction, but still helps control for Type I error inflation. The powerful

nature of the sequential correction makes it preferable to the standard correction for exploratory studies with small sample sizes (Abdi, 2010). Internal consistency was checked using Cronbach's alpha.

Qualitative Analysis

Student perceptions of and experiences in the program were assessed qualitatively. Interviews were audio-taped and transcribed verbatim by the researcher and analyzed on ATLAS.ti using an open coding process to investigate emerging patterns and themes based on the theoretical frameworks. All identifying information was removed from the transcribed data, with the exception of the participants' pseudonyms. All data files were encrypted.

Analysis began using an open-coding process, during which I read and re-read the transcriptions. Open codes were developed in-vivo (in the participant's words) or constructed by the researcher and tagged in ATLAS. As more codes began to emerge across participants, axial coding was used to reassemble the data and create code families. Deductive analysis was then guided by previous research, and code families were grouped under themes related to such elements such as confidence building, self-efficacy, empathy, and anger management strategies (Bachi et al., 2011; Kaiser et al., 2004; Trotter et al., 2008). Special attention was paid to aspects of the program that participants found useful or beneficial, and whether or not the participants planned to use the strategies outside of the program.

Trustworthiness

A number of considerations were made throughout the collection and analysis stages to ensure the trustworthiness of the data in the present study. During the interviews, the participants were asked to clarify their responses if there was any confusion. Some of the interview questions overlapped with one another to give the participants the opportunity to add or modify their

responses. Interview transcriptions were checked for accuracy by an external researcher, and the coding was reviewed to reduce the potential of subjectivity bias. Quotations from the interviews are presented in the results section to ensure readers of the relation between my interpretation and the original evidence (Mays & Pope, 1995). Lastly, the data were cross-checked with previous research in order to identify areas of concordance or discordance. Any findings of gross discord were analyzed further to identify other plausible explanations for the results.

CHAPTER FOUR

RESULTS

The purpose of the present study was to describe the experiences reported by at-risk youth in an activity-based equine assisted learning (EAL) program and evaluate the impact of the program on youths' social skills and resiliency. The study posed the following research questions:

1. Does participation in the EAL program influence youths' social skills and resiliency?
2. What do the participants feel they have gained from their participation?
3. Are the gains, according to the participants, transferable to other areas of the participants' lives?

This chapter presents the results of the analyses described in the previous chapter, and is divided into two sections: effects of EAL on social skills and resiliency, and participants' perspectives on the EAL program.

Effects of EAL on Social Skills and Resiliency

Missing Items

Prior to data analysis, cases were scanned for missing data. Missing data were handled according to the recommendations from the publishers of each set of scales. One missing item was allowed for each subscale of the Resiliency Scales for Children and Adolescents (RSCA) within a single case. The missing item was then replaced with the individual mean score for the subscale of interest. Across both time points, seven participants had one missing item within a subscale, and the mean scores were substituted in place of the missing scores.

For the Social Skills Improvement System (SSIS), adjustment values were calculated according to the missing number of responses and added to the total raw score. For the social

skills (SS) scale, up to 4 missing items were permitted overall across all subscales for each participant. The adjustment value for the SS scale and subscales was the number of missing items multiplied by 2. This adjustment value was calculated for each affected subscale in addition to the total SS score. For the problem behaviours (PB) scale, up to 3 missing items were permitted overall across all subscales for each participant. The adjustment value for the PB scale and subscales was the number of missing items multiplied by 1. This adjustment value was calculated for each affected subscale in addition to the total PB score. One participant was missing 1 item on the SS scale, and the data from one participant (male) were dropped for the entire Social Skills Improvement System due to an incomplete scale for Time 1.

Descriptive Analysis

Prior to conducting inferential analyses, descriptive statistics were calculated for the entire sample (see Table 1). There were 13 participants (4 males, 9 females) in the present study. Participants ranged in age from 11 years to 16 years. Since the study was conducted over summer school break, some students indicated the grade they had just completed, and some indicated the grade that they were going into; due to this inconsistency, the data for current grade were not used. Twelve of the participants spoke English as a first language and identified as Canadian Caucasians, and one participant spoke Arabic as a first language and identified as Moroccan-Canadian.

Three participants had never ridden a horse before, or had any contact with horses. Six participants had advanced experience with horses, and were either taking riding lessons regularly or currently owned a horse. Four participants had minimal experience with horses, and had either ridden once before or visited horses at a farm. Comparisons were not made between groups due

to the small sample sizes. Previous research did not list horse experience as a confounding variable (Trotter et al., 2008).

Table 1
Distribution of Participants

	Mean Age	Min. Age	Max. Age	No Horse Experience	Minimal Horse Experience	Advanced Horse Experience
Male (<i>n</i> = 4)	13.25	12	14	50 % (2)	0	50% (2)
Female (<i>n</i> = 9)	13.56	11	16	11.11 % (1)	44.44 % (4)	44.44 % (4)
Total (<i>N</i> = 13)	13.46	11	16	23.08 % (3)	30.76 % (4)	46.15 % (6)

Reliability. The internal consistency (reliability) for each scale was determined using Cronbach’s alpha. For Time 1, the internal consistency estimates were satisfactory ($\alpha = .63 - .96$) for all subscales except for the bullying subscale of the SSIS ($\alpha = .35$), indicating a large variance in response consistency for the contributing items (See Appendix C for complete psychometric reports). At Time 2, the internal consistency estimates were satisfactory for all subscales ($\alpha = .67 - .98$) including the bullying subscale ($\alpha = .78$).

Inferential Analyses

Inferential analyses were used to explore the pre- and post-test differences. Multiple paired-samples *t*-tests were conducted between the pre- and post-test data to evaluate if participation in the equine assisted learning (EAL) program had an influence on the youths’ social skills and resiliency. The alpha value was set at $\alpha = .05$ for total scales and Holm’s sequential Bonferroni correction for multiple comparisons was computed within each group of subscales (e.g., all subscales under mastery). The Holm’s sequential Bonferroni correction was conducted by ordering the *p* values from smallest to largest for each set of subscales. The test

with the smallest probability was tested with a standard Bonferroni correction for the family of C (number of comparisons) tests (α / C). If the test was non-significant, the procedure stopped. If the first test was significant, the test with the second smallest p value was then corrected with a Bonferroni for family of $(C - 1)$ tests (i.e., $\alpha / C - 1$). The third test was corrected with a Bonferroni for family of $(C - 2)$ tests, and so forth. To be considered significant, the p values for each scale had to be smaller than the corrected Holm-Bonferroni alpha cut-offs, which are reported for each subscale in Appendix C . The psychometric properties for all 26 scales at both time points are also available in Appendix C.

Social Skills Improvement System. The Social Skills Improvement System (SSIS, Gresham & Elliott, 2007) was used to determine if participation in the EAA program had an impact on the youths' social skills. The SSIS is divided into two subscales: Social Skills and Problem Behaviours. The Social Skills scale provides a total social skill's score comprised of seven subscales: communication, cooperation, assertion, responsibility, empathy, engagement, and self-control. The Problem Behaviours scale provides a total problem behaviour's score comprised of four subscales: externalizing symptoms, bullying, hyperactivity/inattention, and internalizing symptoms.

Social Skills. Paired samples t -tests were conducted to compare the pre- and post-test scores on the total Social Skills raw score and the seven subscales' raw scores (see Table 2). The SSIS self-reports for the social skills rating scale achieved statistically significant improvement in three areas after computing the Holm-Bonferroni corrections: total social skills $t(11) = 2.36, p = .038, d = .44$, empathy, $t(11) = 3.50, p = .005, d = .85$, and self-control $t(11) = 3.15, p = .003, d = .54$. Cohen's d indicated that EAL had a large effect on empathy ($d = .85$) and a medium effect ($d = .54$) on self-control.

Table 2
Means, Standard Deviations, and Ranges, for Social Skills Scales at Times 1 and 2 (n=12)

	Time 1				Time 2			
	<i>M</i>	<i>SD</i>	Range		<i>M</i>	<i>SD</i>	Range	
			Potential	Actual			Potential	Actual
Social Skills	102	20.50	0–138	69–128	111	20.31	0–138	76–138
Communication	14.83	2.04	0–18	12–18	15.33	2.46	0–18	8–21
Cooperation	19.08	4.64	0–21	9–21	19.33	4.31	0–21	8–21
Assertion	14.33	3.85	0–21	7–19	15.42	3.18	0–21	11–21
Responsibility	16.67	3.42	0–21	8–20	16.67	3.77	0–21	9–21
Empathy	13.50	2.94	0–18	8–18	15.83	2.55	0–18	11–18
Engagement	14.83	3.43	0–21	9–19	17.75	3.19	0–21	11–21
Self-Control	11.25	3.91	0–18	5–17	13.25	3.52	0–18	8–18

Problem Behaviours. Paired samples *t*-tests were conducted to compare the pre- and post-test scores on the total Problem Behaviours raw score and the four subscales' raw scores (see Table 3). The SSIS self-reports for the competing problem behaviours rating scale achieved statistically significant reduction in internalizing behaviours, $t(11) = -4.30, p = .001, d = .19$, after computing the Holm-Bonferroni corrections. Cohen's *d* measure of effect size indicated that EAL had a small effect on reducing internalizing symptoms ($d = .19$).

Table 3
Means, Standard Deviations, and Ranges, for Problem Behaviours Scales at Times 1 and 2 (n=12)

	Time 1				Time 2			
	<i>M</i>	<i>SD</i>	Range		<i>M</i>	<i>SD</i>	Range	
			Potential	Actual			Potential	Actual
Problem Behaviours	19.17	15.09	0–87	0–52	18.75	18.64	0–87	0–54
Externalizing Symptoms	5.75	5.90	0–36	0–21	6.67	7.66	0–36	0–23
Bullying	1.83	1.59	0–15	0–4	1.50	2.11	0–15	0–7
Hyperactivity/Inattention	5.33	4.27	0–21	0–15	5.75	5.64	0–21	0–16
Internalizing Symptoms	9.42	7.31	0–30	0–21	8.08	7.27	0–30	0–19

Resiliency Scales for Children and Adolescents. The Resiliency Scales for Children and Adolescents (RSCA, Prince-Embury, 2007) were used to determine if participation in the EAA program had an impact on the youths' resiliency. The RSCA consists of 3 global self-report scales (sense of mastery, sense of relatedness, and emotional reactivity) and 10 subscales.

Sense of Mastery. Paired samples *t*-tests were conducted to compare the pre- and post-test scores on the total mastery raw score and the three subscales' raw scores (see Table 4). The RSCA self-reports for the sense of mastery rating scale achieved statistically significant improvement in three areas after computing the Holm-Bonferroni corrections: total mastery, $t(12) = 3.20, p = .008, d = .47$, optimism, $t(12) = 3.72, p = .003, d = .53$, and self-efficacy, $t(12) = 2.67, p = .021, d = .44$.

Table 4
Means, Standard Deviations, and Ranges, for Mastery Scales at Times 1 and 2 (N=13)

	Time 1				Time 2			
	<i>M</i>	<i>SD</i>	Range		<i>M</i>	<i>SD</i>	Range	
			Potential	Actual			Potential	Actual
Mastery	57.46	14.00	0–80	37–76	63.77	12.66	0–80	41–79
Optimism	20.00	5.03	0–28	12–28	22.62	6.76	0–28	13–28
Self-Efficacy	28.85	6.76	0–40	18–39	31.69	6.12	0–40	20–40
Adaptability	8.62	2.66	0–12	5–12	9.56	2.22	0–12	5–12

Sense of Relatedness. Paired samples *t*-tests were conducted to compare the pre- and post-test scores on the total relatedness raw score and the four subscales' raw scores (see Table 5). The RSCA self-reports for the sense of relatedness scales achieved statistically significant improvement in two areas: total sense of relatedness $t(12) = 2.57, p = .025, d = .70$, and support $t(12) = 3.38, p = .005, d = .69$, after computing the Holm-Bonferroni corrections.

Table 5
Means, Standard Deviations, and Ranges, for Relatedness Scales at Times 1 and 2 (N=13)

	Time 1				Time 2			
	<i>M</i>	<i>SD</i>	Range		<i>M</i>	<i>SD</i>	Range	
			Potential	Actual			Potential	Actual
Relatedness	72.08	10.03	0–96	58–91	79.77	11.89	0–96	57–94
Trust	20.00	3.61	0–28	14–25	22.31	3.66	0–28	16–28
Support	19.15	3.18	0–24	14–24	21.23	2.92	0–24	14–24
Comfort	11.69	2.56	0–16	8–16	13.62	2.43	0–16	8–16
Tolerance	21.23	3.52	0–28	17–27	22.62	4.35	0–28	17–28

Emotional Reactivity. One participant was excluded from the analysis for the reactivity rating scale due to incomplete baseline data. Paired samples *t*-tests were conducted to compare the pre- and post-test scores on the total emotional reactivity raw score and the four subscales' raw scores (see Table 6). The RSCA self-reports for the emotional reactivity scales did not achieve statistical significance on any scale.

Table 6
Means, Standard Deviations, and Ranges, for Reactivity Scales at Times 1 and 2 (N=13)

	Time 1				Time 2			
	<i>M</i>	<i>SD</i>	Range		<i>M</i>	<i>SD</i>	Range	
			Potential	Actual			Potential	Actual
Reactivity	21.33	15.25	0–80	1–46	24.58	21.07	0–80	0–69
Sensitivity	7.58	4.42	0–24	1–16	8.67	5.69	0–24	0–19
Recovery	2.75	4.20	0–16	0–14	3.58	5.18	0–16	0–16
Impairment	11.00	8.30	0–40	0–23	12.33	11.06	0–40	0–36

Participants' Perspectives on the EAL Program

Interviews were conducted with two students (Ghost, a 13-year old male, and Gracie, a 15-year old female) on the last day of the equine assisted learning (EAL) program to examine in-depth students' experiences in and perceptions of the program. Emergent coding revealed 46

codes within 10 code families. For ease of interpretation, the results are organized into two overarching themes based on the research questions: (1) What do the participants feel they have gained from their participation? and (2) Are the gains, according to the participants, transferable to other areas of their lives?

The first section, participant gains, will be organized into three categories: internal factors, external factors, and interactions with others. The internal factor includes themes surrounding how the participants felt during the program and ways in which they found it helped them, including the following: emotions, self-awareness and regulation, and mastery experiences. The external factor includes aspects of the program or environment that they perceived as beneficial, including the following themes: environmental factors and program aspects. The interactions with others section includes both internal and external factors that the participants experienced as a result of interacting with others, including the following themes: communication, empathy/understanding, bonding, and belonging.

The second section, transferable gains, includes descriptions from the participants regarding what skills they think will be useful outside of the farm setting, in addition to some overlapping codes or themes from the first section that the researcher considers to be transferable. Since the purpose of this study was to describe the overall experiences of youth in an EAL program, each individual code will not be discussed; instead, the main themes that emerged from the analysis will be covered in greater detail.

Participant Gains

Internal Factors - “I feel different”

After the open coding process was complete, each *in vivo* or constructed code was categorized into larger code families. The internal factor codes include themes or factors that are

internal to the participant, such as emotions or self-concept, many of which can be classified as factors of resiliency. The internal factors are loosely divided into three categories: emotions and emotional states, self-awareness and regulation, and mastery experiences.

Emotions and emotional states. The interviews revealed that both participants embarked on an emotional journey throughout the four days in the EAL program. The feedback from the participants was positive and both discussed feeling a sense of calm and enjoyment when working with the horses. Ghost commented that “the activities we’ve done were really fun,” (8) and that even though he was very nervous with the horses on the first day, he felt that “I can just walk up to any one of these horses, and go, hello, and not even worry about it” (136). Gracie’s most enjoyable moment in the program was working with the horses, although playing with the dogs was a close second:

Gracie: Mainly the horses.

Researcher: What about the other animals?

Gracie: Yea, the dogs, I like the dogs. I wanna take that dog home. I wanna take... it's Mercedes right? Yea, I wanna take her home. (112–114)

Although both participants insisted that the experience was positive overall, their comments about their experiences revealed that they also encountered feelings of frustration, nervousness, and fear of judgment. The participants noted that these feelings were not a bad thing, but in fact helped them to overcome challenges and enjoy the activities more. For example, when discussing frustration at encountering difficult tasks, Ghost mentioned that “it’s a fun challenge, it’s not a *oh, I can’t do this*, it’s a *OK I’m gonna do this...* it’s simply given me a chance to start bonding, and learning new ways to encounter horses,” (78–79). When Gracie discussed worrying about being judged by her peers, she commented that “when I’m working with the horses, I just

don't think about anything else. I just think about what I have to do," (86). Working with the horses, or demonstrating a task using a horse, seemed to disperse the fear of judgment that Gracie usually felt when she performed tasks in front of her peers:

Researcher: Have you faced any other challenges here?

Gracie: Um, well... just being able to do stuff in front of people cause I don't, usually like doin that? And yea, I dunno... I just, sometimes, I don't like doing stuff in front of people cause I don't like what I look like and stuff? 'Cause a lot of people, would judge you and stuff?

Researcher: Yea. Do you think you overcame that challenge? By the end of the week?

Gracie: Kinda? I think so, a little bit.

Researcher: So what if you were asked today to go up and do something in front of all of us. How would you feel about it?

Gracie: Like with the horse? Or just in general?

Researcher: Yea, with the horse.

Gracie: Then I'd be fine I think.

Researcher: What if it was without a horse?

Gracie: Maybe, I dunno... (61–78)

When asked about performing the task without the horse, Gracie became very indecisive and started talking about one of the horse-based activities that she enjoyed instead.

Self-awareness and regulation. Both Ghost and Gracie displayed a sense of self-awareness throughout the interviews, reflecting back on their experiences and discussing how working with the horses has helped them to become more cognizant of their own behaviour. Gracie confessed that she found it easier to focus when she is at the farm, stating, "I have my

ADHD so I find it really hard to focus. And I'm on pills, but it's still hard to focus. But then, if I'm around horses, it doesn't, I dunno, I just, I focus right away" (88). Earlier in the interview, she mentioned that, "I feel happy, I dunno, like when I'm with horses I don't think about anything. I'm just, with horses so anything that has happened in my past or whatever, I don't feel like it's happened, I'm just... with them" (38). Working with the horses helped Gracie to focus on the task at hand and live in moment. Ghost also explained how he had a similar revelation on living in the moment: "You gotta go slow, instead of fast, to get through life 'cause that's just how it works. Because if you go fast you might miss something. And I would rather live life than really just... miss opportunities like this" (88).

Ghost spoke about how he thought that he worked well with other people, but would often get frustrated when they told him what to do. He explained that participating in the group activities made him realize that instead of getting frustrated, he could improve on his cooperation skills:

With the peers that I'm here with... it's okay, cause, sometimes I think, you know what? I better listen to her because I noticed that, yea that's what I'm doing, I better... change that. Cause I'm getting a few pointers from people who have done this before. And I haven't. So, I think when I listen to them, they go, hey, you know what, he listened to me, how about I get along with him and he may get along with me... I should respect that. I should respect that idea, and do it, and see if it works. (126–127)

In addition to discovering that he was not as good at cooperating as he thought, he also discussed being aware of how he treated himself, realizing that he can be very hard on himself. He noted that participating in the activities helped him to highlight the positives, and overcome the negatives:

Ghost: Sometimes I may not feel real good about myself. Like, I may look at myself and go like, well, that was stupid. Like...

Researcher: Mmhm.

Ghost: And like, show no pity on myself, cause, that's just how I am, but, I'm noticing that if I show myself more, like, remorse, and give myself compliments, and good things about me, then I can feel good emotionally, and I won't be grumpy. I'll be happy. Even if something bad happens, I'll be happy. (178–179)

This excerpt is also a good example of resilience in the face of adversity, as Ghost commented on being able to stay happy even when something bad happens. Throughout his interview, Ghost mentioned a number of times that he was better able to face tough situations, and showed that he hoped to continue his journey of self-discovery by working at the farm or attending more sessions.

Mastery experiences. Both interviewees spoke about encountering new or difficult tasks each day in the program. Whether the tasks were challenging because they required a new skill set, or because the students were required to perform a task in front of their peers, both participants agreed that they had to overcome a number of challenges. Bandura's social cognition theory highlights the importance of participating in mastery experiences, or experiences in which one encounters and overcomes challenges, as integral to the development of self-efficacy and healthy social skills. As Ghost confessed, "The most challenging part of this program has been the fact that I've encountered challenging things. Which are definitely new. Everything here is new. It's a fun challenge." (78). He continued to talk about working with Buster, a difficult horse at Willow Brook Farm, and how Buster helped him become motivated to work towards overcoming challenging tasks:

When I face a challenge, such as Buster, I don't let myself... I don't let myself like, weep on that, if I don't get it right. Cause I know that the next day, I'm probably gonna challenge that again, and if I don't get it then, I'm gonna do it the next day, and maybe that next day is the day that I actually get it. So, really, it's me just trying, retrying, retrying, retrying. And retrying doesn't frustrate me because I don't let it get to me. (112)

Both Ghost and Gracie admitted to having a hard time working with Buster, but as Gracie said when she was able to get him to perform a task, “it kinda made me happy cause he’s one of the most stubborn horses I’ve seen” (56). Ghost found the challenge of working with Buster so rewarding that he is now volunteering at the farm three days a week and learning about farm management. His closing thoughts on participating in the program were, “I talk to myself sometimes, like, starting with thinking... can I really do it, or can I not? And I'm just gonna, instead of just saying can I not, I'm gonna say I can do it. Because I'm confident enough that I can” (180).

External Factors - “This is a good environment”

Throughout the interviews, a number of themes arose pertaining to factors outside of the participant, that is, external factors. These themes included environmental factors and aspects of the program that the participants found beneficial. The usefulness of program aspects outside of the program will be discussed in more detail in the section on transferable gains.

Environmental factors. Being at the farm instilled a sense of security and comfort, and both participants indicated that they felt calm and relaxed during the program. Ghost referred to the farm as “a safe and fun environment” (103), and Gracie highlighted the non-judgmental atmosphere of the employees and the horses. The entire program was conducted outside at the farm, and on days with good weather, the classroom (used for instruction and debriefing) was set

up on tables immediately adjacent to a paddock with horses in it. On rainy days, the classroom would be moved to the indoor arena, which is a large, covered sand ring.

Researcher: What is it like, being at the farm?

Ghost: I feel like this is a good environment. It's where I can be calm. Where I can be not mad, I can be settled, I can... I can go to a horse and like, talk to it if I need to... It almost feels like a second home, more like. Cause I'm adjusted... it's been only four days, but, I feel, really adjusted with everything that's going on here. That's why I want to come back and volunteer and see the horses. It's a safe place. (94–95)

When speaking with Gracie about the same topic, she had a very similar experience:

Gracie: I just feel really calm, and, I actually like it better than being at my house.

Researcher: It makes you feel calm?

Gracie: Yea.

Researcher: Why do you think that is?

Gracie: Cause there's not a bunch of drama and other stuff that I have to worry about. (138–142)

From what the participants highlighted about the environment, it appears that the natural physical setting of the farm combined with the easy-going social environment helped the participants to become more settled and open to new experiences. This closely aligned with a perceived increase in the participants' ability to focus, which was also highlighted in the internal factors section. As Gracie suggested, the farm was a place where she could avoid drama and other potentially stressful social situations.

Program aspects. Some of the interview questions focused on aspects of the program that the participants found enjoyable or beneficial. Both Ghost and Gracie stressed that working

with the horses was the most enjoyable aspect, and both independently highlighted the usefulness of the instructional and debriefing sessions.

Ghost: Well, I've been in behaviour programs where they taught me different like... self-esteem, control, and all that, but I think that... that was in school, and this is outside of it. And I think that the lessons that were taught to me, about how to control myself, and how to keep myself calm, and keep the horses calm, are gonna be very helpful.

Researcher: So the lessons here...

Ghost: Yup. And I think that, if I were to keep coming here, and like, interacting, that I could learn not only about horses, but learn about myself. (150–154)

In this conversation with Ghost, it is also clear that environmental factors, such as being outside the school environment, had an impact on his ability to learn about himself. The strategies that Ghost referred to included monitoring your own body language and emotional states, and how these might affect your interactions with other people or animals. Gracie also commented that she would continue using strategies for developing a positive self-concept:

I like the stuff you guys talked about, how to communicate, and then the self-esteem stuff, and like how to... if you do it daily, and think of stuff, it'll help... like, when you picked things that you were good at, and then just thought about it. (154–156)

Many of the strategies that were discussed with the students were targeted at building resilience through improved self-concept, self-confidence, and self-awareness. After speaking with Ghost and Gracie, it seemed that one of the most important aspects of the program was debriefing the horse-based activities to ensure that the students understood why that activity was chosen, what happened during the activity, and how they could improve. Ghost mentioned,

Well, I think all of the discussions that we've had, will probably leave here with me. Because, they've not only helped me attach to new different things that I haven't been able to before, but also... they're gonna help me whenever I'm in like, a tough situation. Like, go, okay this is what I can do... to deal with the situation. (124–125)

Not only did Ghost find the discussions helpful, but they helped him to contextualize the situations, and provided him with tools that he can use when he encounters difficult situations.

Interaction with Others - “Trust is a big thing”

According to the participants, one of the most important aspects of the program was interacting with both horses and other people. Working with the horses provided the participants with the opportunity to form bonds based on respect and understanding, emphasizing the importance of trust in developing relationships with both horses and people. Ghost explained,

My favourite moment was when, the first time a horse ever gave me trust and followed me. No food, no anything. Just followed me... And, really from then, I've just been like... you know what? How about I gain some more trust, and, use that. Cause, obviously, it's working. Cause trust is a big thing, not only with horses, but with humans... and that's just the cycle of life if you don't trust a person, you have little attention to let them bond, whether you like them or not. (52–58)

Ghost continued to talk about working with Buster, and the strategies that he is trying in order to develop a respectful relationship with the horse.

Bonding. In addition to trust, both participants emphasized how rewarding it was to develop a connection or bond with a horse. Gracie felt calm and relaxed when she was working with the horses, especially Legacy, who she described as “she’s really sweet, I feel like I just bond with her a lot. I don’t even know why” (36). Both participants seemed to identify with at

least one horse, and commented on the personality or behaviour traits that they think they shared. One of the reasons that Ghost chose to work with Buster was because he felt that he understood why Buster behaved in a certain way:

Cause he's like, distracted, and movin around... He's bored. He is... that's kinda one of the things that I'm similar... because when I'm bored, I move around. I don't wanna stay in one spot. And I think that's how he is. He wants to move around. (26)

This apparent display of empathy towards the horse served to help Ghost develop a perceived bond with Buster. Additionally, Ghost identified with Buster because he “stands his ground,” (38) and explained that “at home, or at school, I say you know what? This is my space. You’re gonna stay out of it,” (40). However, Ghost also cautioned about some of Buster’s personality traits that he thought should not be emulated, such as being too aggressive towards other horses when they come into his space. Forming this connection with Buster seemed to help Ghost talk about other things in his life that he had trouble with, especially after he was able to point out why he felt the connection.

Both Gracie and Ghost said that having the opportunity to forge bonds with the horses was a highlight of the program. As Gracie said on multiple occasions, “I just connect with the horses”, (40, 84) and Ghost tried to describe what it was like to interact with the horses:

Ya like the first time, when I was trying to back-up Buster, I was not in control. He was, basically, in control of me, because when he started to walk up... it kinda made me back up, because uh, he's a big horse. He's big. Not as big as Thor, but he's big. And, there was another time where, for the first couple of minutes I thought that Togo, and Bubba, weren't gonna go for me. But I just... I think a horse knows that they can look at me, and

like when I pet them or something, they can feel... like this is the horse and this is me...
they can feel the connection, and the trust, that they can put into me. (142–144)

It is clear in this excerpt that Ghost was able to look back at his experiences and reflect on how his nervousness may have influenced the way the horses interacted with him. When he calmed himself down and decided to put trust in the horse, he felt that the horse was able to put trust back into him.

Although Ghost and Gracie claimed that the most enjoyable part of the program was working with the horses, they also highlighted the usefulness of the instructional and debriefing sessions. Both participants appeared to have enjoyed their interaction with their peers and the instructors, and Ghost confessed, “I have very high trust in everybody here. And I hope I have made friends... and getting along with you [researcher] and Liz [instructor], there hasn’t been any times where I’ve been frustrated at youse... or with the peers that I’m here with” (126).

Transferable Gains

“Why you bothered?”

Both Gracie and Ghost indicated that they would use the strategies learned during the instructional sessions outside of the farm, in addition to transferring the strategies from working with horses to working with humans. The scope of the present study cannot confirm whether the participants will actually use the strategies at home after the completion of the program; however, Ghost spoke about using some calming strategies at home over the course of the EAL program:

Ghost: When I'm outside of here, I'm starting to like... not get so frustrated at some things, because I look at it like, "why you bothered?" It's gonna happen anyway, so, just don't let it bother you... Cause learning different things in different ways, and, I think the

way that Liz [instructor] describes things, like the self-esteem between a horse and a human, are so... similar? And the personalities, and, really, to be honest, it's... it's almost like when I'm face to face with a horse it's like being face to face with a person, in a just totally different body.

Researcher: Yea. So, you like the way that Liz used the horses to describe things like self-esteem, communication...

Ghost: Yup, because I feel like I'm... I'm looking at a horse now, but maybe in the future I'll be looking at a human, and be doing the same thing, just in a different manner. (116–120)

In this excerpt, Ghost explained that he can see how learning about horse behaviour can help him in his interactions with other people. Along similar lines, Gracie said that she found the communication module to be the most useful and the most easily relatable to other areas of her life:

Researcher: So when we had our conversations about communication, self-esteem, goal setting... what parts of these do you think is most useful when we were talking about them?

Gracie: Communication.

Researcher: Communication?

Gracie: Yea.

Researcher: So, is it useful just at the farm? Or...

Gracie: No, just like in general, like with people... if you were gonna go somewhere you'd probly wanna tell the person you're going somewhere. (laughs)

Researcher: Yea (laughs). What did we talk about in terms of communication?

Gracie: Mostly it's more than one way of doing it.

Researcher: How about what we learned about when you take one aspect of that communication away?

Gracie: It can be harder but you like... still figure it out. (120–130)

Gracie stressed that you need communication in daily life, and even though it is more difficult to use only one communication strategy (e.g. only written), you will eventually figure it out. Later in the interview, she mentioned again,

Gracie: I like the stuff you guys talked about, like how to, communicate...

Researcher: And you think you can use that outside of the farm?

Gracie: Yea. (155–157)

“I just connect with the horses.”

One of the recurring themes in both interviews was empathy and understanding. In working with the horses, Ghost and Gracie learned how to monitor a horse's behaviour to determine whether the horse was in an approachable mood. Gracie stressed the importance of learning how to tell what her horse was feeling, so that if the horse was scared or nervous, she would be able to prepare herself (16). Both participants talked about discovering how each horse has a different personality, and like humans, will react differently in stressful situations. Gracie explained, “if you know what they're [the horses] feeling and how they're gonna act, then it's kinda, not as scary,” (92). Similarly, Ghost discussed how learning about reading a horse's body language has helped him to pay attention to his and other people's emotional states:

It's not like I'm gonna be able to mind read, I'm gonna have to be able to interact with the person, and see how the person's feeling about me, or how I'm feeling about that person,

and, I think the best way to express your feelings is to tell the other person. Get it off your chest. Which is... hard for some, but maybe easier for others.

As aforementioned in the section on interactions with others, the participants learned about what it takes to form a trusting bond with the horses, and potentially with other people. This increased sense of empathy and understanding may be transferable to other situations outside of the farm.

"Wow, I just did that."

After reading through the transcripts, it became clear that both Gracie and Ghost had an increase in their perceived self-confidence to overcome and master obstacles both at the farm and outside of it. As noted in the section on participant gains, Gracie and Ghost encountered a number of challenging tasks. Ghost felt that, "Maybe, what I'm gonna get from meeting these horses, and overcoming the fear of touching them, and feeding them and stuff, I think I'll overcome other fears... Like, you're confident that you can do it. And you give yourself that confidence" (82). Mastering his fear of touching a horse on the first day boosted his confidence in attempting other new tasks. When Gracie was asked to sum up her experience in one sentence, she emphasized, "It was fun, I kinda wanna do it again. I feel more confident about certain things," (146). Gracie had mentioned earlier in the interview that she was feeling more comfortable speaking in front of her peers, especially about horses, and that she wanted to try some of the positive self-concept strategies at home. It is possible that these perceived gains in self-confidence and mastery will be transferable outside of the farm.

Summary

The change in self-report measures indicated that participation in the EAL program may contribute to social skills development, including a statistically significant increase in perceived levels of empathy and self-control, and a significant reduction in internalizing symptoms.

Participation in an EAL program may also foster factors of resiliency, including a significant increase in sense of perceived mastery, optimism, self-efficacy, sense of relatedness, and support. Additionally, qualitative interviews with two participants in the EAL program revealed that participants enjoyed working with horses, experienced increased self-awareness and self-confidence, felt comfortable at the farm, and developed trusting bonds with the horses and people. These results suggest that participation in the EAL program may have positively contributed to the youths' social cognitive development.

CHAPTER FIVE

DISCUSSION

This study described the experiences reported by two at-risk youths participating in an equine assisted learning (EAL) program, and evaluated the impact of the program on the youths' social skills and resiliency. The study posed the following research questions:

1. Does participation in the EAL program influence youths' social skills and resiliency?
2. What do the participants feel they have gained from their participation?
3. Are the gains, according to the participants, transferable to other areas of the participants' lives?

The research questions focused on the participants' perspectives of the EAL program, and were addressed using either quantitative methods (i.e., self-report surveys) or qualitative methods (i.e., individual exit interviews). This chapter discusses the findings from both the quantitative and qualitative portions of the study. This chapter is arranged into four sections. The first and second sections review the quantitative and qualitative findings respectively, in reference to the research questions and guiding frameworks. The third section highlights the aspects of the present study that limit the ability of the findings to be generalized, or those that may impact the soundness of the findings. The fourth and final section concludes with implications for future research and EAL program development and implementation.

Developing Social Skills and Resiliency

The first research question evaluated if the equine assisted learning (EAL) program had an impact on the participants' social skills and resiliency. The present study found that participation in the EAL program seemed to have a primarily positive impact on specific areas of resiliency and social skills development.

Social Skills

The social skills rating scales of the Social Skills Improvement System (SSIS) indicated a significant increase in total social skills following participation in EAL. The social skills rating scales also found that participants reported a statistically significant increase in perceived level of concern and respect for others' feelings and viewpoints (empathy) and a statistically significant increase in perceived ability to respond appropriately in conflict and non-conflict situations (self-control). Cohen's *d* indicated that EAL had a large effect on empathy and a medium effect on self-control. The medium to large effects for empathy and self-control were achieved after only four days in the EAL program. Previously, Bachi et al. (2011) did not find a significant change in self-control for a clinical sample of youth in a 7-month equine facilitated psychotherapy (EFP) program. It is possible that the program did not actually address self-control, or that the present study found a novelty effect, whereby the novelty of being in a new program produced a temporary increase in levels of self-control.

The results from the present study do align with previous qualitative work conducted by Burgon (2011), who found that at-risk youth in a long-term equine assisted activity (EAA) program developed empathy, self-confidence, and self-efficacy, as a result of participating in the program. Burgon's study focused on a two-year program, whereas the present study evaluated a short-term four-day program. This suggests that even on a short-term basis, EAL programs have the potential to influence youths' perceived sense of empathy and self-control.

The EAL program in the present study was designed to use the therapeutic triangle, or interactions between the participant, horses, and instructor, as a means to develop empathetic reactions towards others. Many of the activities focused on the difficulties of determining a horse's feelings in lieu of verbal communication. During the debriefing sessions, the instructor

encouraged the youths to make connections between communicating with a horse and communicating their feelings to others. As Karol (2007) hypothesized, it is possible that discussions of this manner provided the opportunity to develop a higher sense of empathy towards the horses and others.

Using Bandura's (1991) social cognitive theory, which highlights the reciprocal relationship between a person's cognitions, behaviour, and environment, working with the horses may have allowed the participants to reflect on and regulate their interactions with others, and thus increase levels of perceived self-control. Participants were encouraged to think back on their experiences throughout the program, especially in regards to their reactions towards the horses, or the horses' reactions towards them during the activities. In his interview, Ghost (13-year old male) reflected on his experience in a team-based activity. He realized that instead of getting upset or frustrated, he could benefit from listening to other people's ideas, and by respecting their ideas, gain some respect himself. This act of reflecting on their experiences may have fostered self-control as an aspect of self-monitoring, which Bandura (1991) insisted was critical for developing healthy social cognition. Additionally, maintaining safe interactions with the horses would have required the participants to follow rules closely (e.g., no running up to a horse, no hitting a horse), which may have encouraged the development of self-control by requiring the participants to regulate their behaviour for safety reasons.

Contrary to predictions by Waite and Bourke (2013), the present study did not find a significant change in level of engagement, although Cohen's d indicated a large effect size ($d = .88$). This suggests that the study was underpowered due to a small sample size, especially considering that the participants in the interviews seemed to be very engaged and enthusiastic about working with the horses and participating in the program.

Problem Behaviours

The SSIS self-reports for the competing problem behaviours rating scale achieved a statistically significant reduction in perceived feelings of anxiety, sadness, loneliness, and poor self-esteem (internalizing symptoms); yet, the effect size indicated that EAL had a small reduction in this area. Internalizing symptoms can interfere with a youth's ability to form positive relationships and develop healthy social cognition, and reducing these symptoms is often seen as a protective factor (Edwards et al., 2007; Rak & Patterson, 1996). The interviews from the present study indicated that the participants felt calm and happy while at the farm, and they considered it to be a safe environment. The calming atmosphere of the farm and interacting with the horses and other people may have helped to reduce feelings of loneliness, anxiety, and sadness. These results agree with previous research on equine assisted activities (EAA) which found a significant reduction in anxiety, an internalizing symptom, after only one session (Holmes et al., 2012).

Resiliency

The Resiliency Scales for Children and Adolescents (RSCA, Prince-Embury, 2007) were used to determine if participation in the EAL program had an impact on the youths' resiliency. The RSCA consists of three global self-report scales (sense of mastery, sense of relatedness, and emotional reactivity) and 10 subscales.

Sense of mastery. This study found an improvement in overall perceived sense of mastery, optimism, and self-efficacy. The EAL program had a medium effect on optimism and a smaller effect on total mastery and self-efficacy. Prince-Embury (2007) noted that an increase in optimism can also increase the likelihood that an individual will be able to cope with adverse

circumstances, and Bandura (1993) stressed the importance of developing positive self-efficacy beliefs as the central motivator of human agency.

The EAL program provided many opportunities for developing protective factors such as a sense of mastery (Clanton Harpine, 2008; Walsh & Eggert, 2007). Working with horses allowed the participants to accomplish and master new tasks, which may have contributed to the development of increased self-efficacy, optimism, and mastery. Bandura (1991) stressed that any behavioural intervention should address at least one of four factors that influence self-efficacy: mastery experiences, vicarious experiences, social persuasion, and physiological and emotional states. As suggested in the section on theoretical foundations, the EAL program incorporated aspects of all four factors.

The program provided opportunities for students to overcome problems and obstacles (mastery experiences), and allowed for observation and modeling of other's successes (vicarious experiences). The group-facilitation format of the EAL program provided an opportunity for participants to improve through social persuasion and encouragement. During the program, instructors, volunteers, and other students provided positive verbal feedback during tasks. Additionally, the EAL program provided conditions that allowed for the exploration of situational stressors, participant moods, previous experiences, and perceptions of experiences (physiological and emotional states). During the interviews, the participants highlighted the importance of overcoming challenging tasks and how this made them feel happy and confident, giving them the sense that they could accomplish other new tasks. It is possible that working around horses, which can be seen as dangerous or intimidating animals, has contributed to the students' sense of mastery and resilience.

Sense of relatedness. Relatedness is described as feeling securely connected to other individuals in a social context (Prince-Embury, 2007). The RSCA self-reports for the sense of relatedness scales achieved statistically significant improvement in overall perceived relatedness to others and access to support. Participation in the EAL program had a medium-sized effect on participants' perceptions of accessible support and sense of relatedness. Relationship research has shown that perceived support is the dimension of social support that is most strongly linked to psychological well-being in both children and adults (Laursen & Birmingham, 2003; Prince-Embury, 2007). Research also suggests that the internal mechanism of being able to relate to others in a meaningful way establishes resiliency (Werner & Smith, 2001). Participating in the EAL program gave the youths the opportunity to form supportive relationships with adults outside of the family. Forming these relationships may have fostered an increased sense of support in the youths. As Ghost mentioned in his interview, he had "very high trust in everybody here" (126) after only four days at the farm. It is unclear whether the horses were able to buffer the development of these relationships; however, the presence of animals is often considered an aid to rapport-building between participant and practitioner (Kruger & Serpell, 2010). Theorists propose that animals can provide a neutral, external subject on which to focus, and stimulate conversation by their presence and unscripted behaviour (Fine, 2010; Levinson, 1969). It is possible that working with the horses in the EAL program helped the participants develop positive relationships with the instructor and volunteers.

"I could learn not only about horses, but learn about myself."

The results from this study suggest that participants enjoyed partaking in the EAL program, in addition to gaining some psychosocial benefits that are often classified as protective factors. The second and third research questions examined what the participants felt they had

gained from participating in the EAL program, and whether these gains would be useful in other areas of the participants' lives. Individual interviews were conducted with two participants (one 13-year old male, one 15-year old female) on the last day of the EAL program. The interviews were analyzed and revealed a number of themes related to participant gains and transferable skills. These findings will be discussed in the context of the theoretical frameworks and previous research.

Participant gains

Burgon (2011) found that the relationships and experiences that participants had with the horses in a long-term equine assisted activity (EAA) program contributed to gains in psychosocial functioning, including protective factors such as social competence, mastery, empathy and self-efficacy. The present study found similar results for a short-term program, with the participants reporting positive emotional states, a sense of mastery and self-efficacy, empathy, confidence, and increased levels of self-awareness and regulation. Many of the reported gains were classified as *internal factors*, reactions that occur within the participant, however some of the positive aspects of participation were related specifically to *external factors* such as environmental or program features, and to *interactions with others*.

Internal factors. Both participants indicated feeling a sense of calm and enjoyment when working with the horses, although not all of the emotions they felt during the program were necessarily positive. Participating in the program led Ghost and Gracie through many challenging tasks, such as leading a horse through an obstacle course without touching it, which were sometimes frustrating or difficult. Bandura (1978, 1991) noted that persistence in challenging or subjectively threatening tasks actually produces further enhancement of self-efficacy and reductions in defensive behaviour. Bandura highlighted the importance of

participating in mastery experiences, or experiences in which one encounters and overcomes challenges, as integral to the development of self-efficacy and healthy social skills. Encountering frustration in these tasks is a necessary part of developing a sense of mastery, and thus, increasing resiliency in adverse situations. Burgon's (2011) participants had similar experiences with encountering and mastering challenging tasks, and the self-reports from the present study confirmed an increase in perceived self-efficacy and sense of mastery.

After participating in the EAL program, Gracie and Ghost both showed an increase in self-awareness and self-regulatory thought processes. Gracie, who has ADHD, found it easier to focus when working with the horses, and Ghost discovered that he was not the team-player he thought he was. Working with the horses seemed to help Gracie and Ghost monitor their behaviour and the horses' responses to their interactions. The horses, who were highly sensitive to body language and mood states, seemed to become biofeedback mechanisms for Gracie and Ghost (Karol, 2007; Parelli & Parelli, 2012). When Ghost was nervous about approaching the horses, he noticed that the horses also became agitated, so he decided to try different strategies for calming himself down.

External factors. Many of the gains that the participants reported appeared to be a result of external factors, such as the environment and program aspects. Both participants mentioned a sense of belonging at the farm, and talked about feeling safe, calm, and relaxed during the program. Kaiser et al. (2004) highlighted the importance of the natural environment for reducing anger in typically developing youth, a sentiment that Ghost agreed with when he described the farm as being a good environment where he can be “not mad” (94). Gracie stated that she “just focus[es] right away” when she is with the horses, but that she finds it really hard to focus at home even on her ADHD medication. Some supporters of animal-assisted therapies have

suggested that youth are becoming more prone to ADHD due to an increasing lack of experience with animals, nature, and physical activity (Katcher & Beck, 2010). The theoretical framework for the present study did not focus on environmental influences, however, Trotter (2012) theorized that the outdoor setting of EAA would help foster a sense of belonging between the self and the natural world. Trotter also suggested that this *nature connection* should be investigated in more detail to determine the mechanisms at work.

During the interviews, the participants were asked to discuss what parts of the program they thought were and were not useful or enjoyable. Both Gracie and Ghost stressed that the most enjoyable aspect of the program was being able to work with the horses and begin to bond with them. Both participants wanted the discussions about positive self-concept and strategies for self-regulation to remain, along with the debriefing sessions following the activities. An autoethnography by Kelly (2013) also highlighted the importance of debriefing horse-based activities, since the absence of debriefing left Kelly confused and frustrated about what happened during his interaction with the horses. The importance of debriefing activities is supported by research on minimally guided instruction, which has found that discovery learning is often ineffective in the absence of context or structure (Kirschner, Sweller, & Clark, 2006). The EAL program in the present study was very clear about what the students would be exploring and why, and interactions with the horses were analyzed afterwards.

Neither participant found any specific part of the program to be negative or useless; however, Gracie confessed that she got mad when one of the horses refused to complete a task for her, but that was the only negative moment for her. Ghost claimed that there were no negative moments for him throughout the entire week, and that he had an overall feeling of positivity.

Interactions with others. According to the participants, the most enjoyable aspect of the program was interacting with the horses, but that the interactions with people were also positive. Ghost spoke about developing and maintaining trust with the horses, and the importance of trust in building relationships with people. Erikson (1963) described trust as the first stage of social emotional development, upon which all other social development relies. Interestingly, the self-reports from the present study did not find a significant change in levels of perceived trust after participating in the program, nor did Bachi et al. (2011). However, Cohen's d indicated a medium effect for perceived trust ($d = .64$). Ghost's comments may support the conclusion that the present study lacked the power to find significant differences in certain areas, such as trust. The importance of trust in social development highlights the need for investigating the role of EAL in nurturing trust in at-risk youth.

In addition to trust, both participants emphasized the rewards of forming bonds with the horses. Ghost and Gracie felt a kinship with at least one horse, and commented on the personality or behaviour traits that they think they shared. Forming a bond with a horse seemed to help Ghost talk about other things in his life that he had trouble with, such as being antsy or overly critical of himself, especially after he was able to point out why he felt a kinship with the horse. This type of transference was also observed by Ewing, MacDonald, Taylor, and Bowers (2007), when one of the participants projected her feelings onto the horse she was working with. Kruger and Serpell (2010) hypothesized that when animals act as social lubricants, patients will project their thoughts and feelings onto the animals, an idea that has been supported in psychoanalytic research.

Part of the bonding experience that Ghost and Gracie felt was a result of empathic reactions towards the horses. Gracie discussed how she felt better able to tell what her horse was

feeling, and that this would help her figure out how the horse was going to react. The present study also found a large significant effect for increased levels of empathy after participating in the program. Successfully interacting with the horses required the participants to understand the horses' behaviours, which may have encouraged the development of empathy not just towards the horses, but overall.

Transferable Gains

During the interviews, the participants were asked about skills they thought would be useful outside of the program. Both Gracie and Ghost said they would employ the strategies learned during the instructional sessions, in addition to transferring the strategies from working with horses to working with humans. Ghost mentioned that he was already beginning to think differently when things annoy him, and Gracie intends to use some of the new communication strategies with her friends. Ghost made many connections between working with the horses and working with other people, explaining "I'm looking at a horse now, but maybe in the future I'll be looking at a human," (120). After analyzing the interviews, it became clear that both Gracie and Ghost had an increase in perceived self-confidence to overcome and master obstacles both at the farm and outside of it. Ghost stated that he may "overcome other fears" (82), and Gracie felt "more confident about certain things" (146). It is possible that these perceived gains in self-confidence and mastery will be transferable outside of the farm.

Many of the internal gains discussed in the section above may also be transferable to situations outside of the farm, such as empathy and understanding, perceived trust, and the ability to form bonds. The scope of the present study only investigates each participant's stated intent to use the strategies at home or school, and cannot confirm whether the participants actually will use the strategies after the completion of the program.

Limitations

This study examined the experiences of at-risk youth in an equine assisted learning (EAL) program. The focus of this study was on the particular experiences of the participants in one EAL program, and the program's impact on the participants' social skills and resiliency. Only consulting one program is a limitation of this study, as there are many different approaches to EAL. While it is difficult to generalize the results from this study to other programs, the results from this study depict the experiences and perceptions of the reality that is felt by these participants in this particular program. This study was conducted at a farm located near a mid-sized city in Ontario, and the participants were considered to be at-risk for academic and social difficulties. No participants were excluded from the study. The sample included a wide range in age and participants may have had any variety of behavioural or social difficulties, which is inherent with an at-risk sample. This may have introduced a larger than typical variation in the self-report responses, making it more difficult to find statistical differences. The results of this study are thus bound by the context of this program and the experiences of its participants.

Additionally, this study employed inferential statistics with a small sample ($N = 13$). Studies with small samples often experience a lack of statistical power: the ability to detect an effect if the effect actually exists. This study did appear to suffer from low power, since a number of results with medium-to-large estimates of effect size did not achieve statistical significance. Due to the small sample size, the researcher was unable to form a wait-list control group. The lack of a control group makes it difficult to determine whether the observed changes were actually a result of participation in the EAL program or some other external factor. However, the short-term and intensive nature of the program makes it unlikely that the youth were able to participate in other activities throughout the period of the study. The interviews with

the participants illuminated some of the inferential results, indicating that the EAL program is possibly responsible for the changes. Furthermore, the observed changes were not evaluated at follow-up or outside of the farm. It is difficult to say if the improvements will be maintained after leaving the program, or transferred to other areas of the participants' lives.

A final limitation is that I (the researcher) was present at the farm throughout the program. Interpretation of the data may have been swayed by my observations of participants' behaviour or perceived improvements. To help control for bias, the interpretation of the interview data was cross-checked by an external researcher to ensure that the interpretations did not go beyond what was said. It is possible that the trusting relationship and good rapport that were formed between the researcher and the participants during the program may have increased the comfort the participants had with discussing their experiences. Because the researcher occasionally assisted the instructor as a volunteer, it is possible that the youth wanted to please the instructor and speak positively about the EAL program during their interviews. To help control for this, the youth were reminded that what was discussed in the interview was confidential and would have no impact on their position at the farm or the youth diversion program that they were associated with.

Implications for Research

This study sought to examine the experiences of at-risk youth in an equine assisted learning (EAL) program, and the impact of EAL on the youths' social skills and resiliency. One of the objectives of the present study was to illuminate whether EAL could be used to foster resiliency or social skills building. This study was unique in that it investigated the overall impact of EAL on resiliency and social skills development in non-clinical at-risk youth, two aspects of social cognition that the program claims to address. Additionally, this study used a

multi-strategy approach that included both qualitative and quantitative questions, which allowed for a more robust and grounded interpretation of the data. As well, no other published studies have looked at the overall impact of EAL on resiliency or social skills in the Canadian context.

The findings indicated that EAL may be a viable resource for certain aspects of social skills improvement, including increasing empathy and self-control and reducing internalizing symptoms. The study also found an increase in certain factors of resiliency, including aspects of mastery, optimism, self-efficacy, sense of relatedness, and perceived support. These findings align with the directive of the EAL program, suggesting that the program is accomplishing some of its goals. Non-significant effects suggested that other areas of social skills and resiliency development may also be affected; however, the present study lacked the sample size to achieve statistical significance in these areas. Future studies should address the sample size issue and continue to identify areas of social cognition that can be addressed using EAL.

Although the present study provided an overview of EAL's potential, more research is required in order to determine the precise mechanisms at work, especially the role the horses play in promoting social skills and resiliency. Research comparing EAL to a similar program that does not use horses is recommended to determine whether there are any extraneous or confounding variables. Nevertheless, this study found that the participants were interested in the program simply because it involved horses, and even if the horses were not the underlying mechanism for change, the participants listed working with horses as the single-most enjoyable aspect of the program. It would also be valuable to investigate whether or not the outdoor environment can be used to support the development of social skills and resiliency in the absence of an animal assisted intervention (e.g., outdoor classrooms at schools).

It is unclear if the positive effects of participation will be maintained after leaving the program, and if the observed changes will be preserved in other contexts. Given the medium-to-large effect sizes found in the present study, future research should address whether or not the effects are maintained after completing the program, in addition to the size of the maintained effects. Studies evaluating the long-term impact of EAL programs would help to determine if the positive changes observed in this study can be maintained after a short-term program, or if maintenance sessions are required (e.g., once a month). Furthermore, future studies should investigate the transference of the observed effects to other areas of the participants' lives. For example, the Social Skills Improvement System (SSIS) used in this study includes parent and teacher report scales. A longitudinal study that employs all three forms (self, parent, and teacher) of the SSIS would illuminate whether or not the positive social changes occur globally, and how long the changes remain after concluding the program.

Implications for Practice

This study begins to uncover the potential of equine assisted learning (EAL) as a way to foster pro-social behaviour and resiliency. This means that EAL programs may be a worthwhile alternative for social skills development programs, or for fostering resiliency in at-risk youth. Although more research is recommended, this study provides a solid foundation for understanding how to employ short-term EAL programs effectively. In addition to the perceived improvement of the participants, the interviews with the participants illuminated the following aspects of the EAL program that the participants felt were important or useful:

1. The inclusion of horses as motivators for engaging youth.
2. The importance of debriefing horse-based activities.

3. The inclusion of instructional sessions on the aspect of self-improvement that is of interest (e.g., self-esteem, communication).
4. The use of the outdoor environment (e.g., outdoor classrooms).

These four recommendations are all grounded in the data from the present study, and include aspects of the program that the participating youth found to be the most useful or enjoyable. Both Ghost and Gracie insisted that working with the horses was the most enjoyable part of the program, so including horses as a motivation is obviously recommended. As outlined earlier in the discussion section, debriefing the horse-based activities should be a priority. This will ensure that the students understand why a certain activity was chosen, what happened during the activity, and how experiences can be related back to the world outside the farm. Failure to debrief the activities may result in the youth feeling frustrated or confused. Both Ghost and Gracie indicated that the instructional sessions (e.g., communication strategies) were extremely useful, and should continue to be included in future programs. In addition, Gracie and Ghost both felt that the outdoor setting of the farm helped them to feel calm and relaxed. As Ghost suggested, attending a program outside of the regular classroom setting helped him to open his mind. Utilizing the outdoor space for all activities is recommended for future research on EAL.

Conclusion

This multi-strategy study evaluated the effectiveness of equine assisted learning (EAL) on at-risk youths' social skills and resiliency, and described the experiences and perceptions of two youths in the program. The quantitative results of this work indicate that participation in an EAL program may:

1. Contribute to social skills development, including an increase in perceived levels of empathy and self-control, and a reduction in internalizing symptoms.

2. Foster protective factors and certain aspects of resiliency including an increased sense of perceived mastery, optimism, self-efficacy, sense of relatedness, and support.

Additionally, interviews with two participants in the EAL program revealed the following as perceived benefits to participating in the program:

1. Having fun with horses
2. Feeling an increase in self-awareness, self-regulation, and self-confidence
3. Learning self-monitoring strategies to use at home or school
4. Feeling a sense of mastery and accomplishment
5. Being in a safe and fun environment
6. Developing trust and forming bonds with horses

This research has served as a foundational step towards understanding how horses can help foster social skills and resiliency in youth within the Canadian context. Further investigation is recommended to determine the underlying mechanisms at work, in addition to whether the perceived gains are transferable to other areas of the participants' lives. It recommended that EAL program planners promote working with horses as an incentive to participate and include debriefing and instructional sessions in an outdoor environment.

The overarching goal of this research was to provide a foundation for empirical research on EAL within the Canadian context. It is hoped that the literature, methodologies, results, and recommendations compiled in this study will be used as a stepping stone for more research on employing EAL as a tool for social cognitive development.

References

- Abdi, H. (2010). Holm's Sequential Bonferroni Procedure. In N. J. Salkind (Ed.), *Encyclopedia of Research Design*. Thousand Oaks, CA: SAGE Publications, Inc.
- Anderson, D. C. (2004). The human-companion animal bond. In J. M. Kistler (Ed.), *Animals Are the Issue: Library Resources on Animal Issues* (pp. 7–23). Binghamton, NY: The Haworth Press.
- Bachi, K., Terkel, J., & Teichman, M. (2011). Equine-facilitated psychotherapy for at-risk adolescents: The influence on self-image, self-control and trust. *Clinical Child Psychology and Psychiatry*, *17*(2), 298–312. doi:10.1177/1359104511404177
- Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. *Psychological Review*, *84*, 191–215.
- Bandura, A. (1991). Social cognitive theory of self-regulation. *Organizational Behaviour and Human Decision Processes*, *50*, 248–287.
- Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist*, *28*(2), 117–148.
- Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology*, *52*, 1–26.
- Bandura, A., & Locke, E. A. (2003). Negative Self-Efficacy and Goal Effects Revisited. *Journal of Applied Psychology*, *88*(1), 87–99.
- Berg, D. H. (2006). Do psychosocial self-evaluations mediate the relationship between academic self-concept and depression in school children? *Exceptionality Education Canada*, *16*(2), 5–34.

- Berger, C., Alcalay, L., Torretti, A., & Milicic, N. (2011). Socio-emotional well-being and academic achievement: Evidence from a multilevel approach. *Psicologia Reflexao E Critica*, 24(2), 344–351.
- Bergman, M. M. (2008). *Advances in Mixed-Methods Research*. New York, NY: SAGE Publications, Inc.
- Borioni, N., Marinaro, P., Celestini, S., Del Sole, F., Magro, R., Zoppi, D., ... Bonassi, S. (2012). Effect of equestrian therapy and onotherapy in physical and psycho-social performances of adults with intellectual disability: a preliminary study of evaluation tools based on the ICF classification. *Disability & Rehabilitation*, 34(4), 279–287.
doi:10.3109/09638288.2011.605919
- Bowen, M. (1978). *Family therapy in clinical practice*. New York, NY: Jason & Aronson.
- Bowlby, J. (1969). *Attachment and loss*. New York, NY: Basic Books.
- Brady, H. A., Hernandez, H. M., & Guay, K. A. (2011). The Status of Equine-Assisted Therapy Programs within Higher Education. *Journal of Equine Veterinary Science*, 31, 350–351.
- Brofenbrenner, U., & Evans, G. W. (2000). Developmental science in the 21st century: Emerging theoretical models, research designs, and empirical findings. *Social Development*, 9, 115–125.
- Brooks, S. (2001). Working with animals in a healing context. *Reaching Today's Youth*, 19–22.
- Burgon, H. L. (2011). “Queen of the world”: Experiences of “at-risk” young people participating in equine-assisted learning/therapy. *Journal of Social Work Practice*, 25(2), 165–183.
doi:10.1080/02650533.2011.561304
- Caprara, G. V., Barbaranelli, C., Pastorelli, C., Bandura, A., & Zimbardo, P. G. (2000). Prosocial foundations of children’s academic achievement. *Psychological Science*, 11(4), 302–306.

- Clanton Harpine, E. (2008). *Group Interventions in Schools: Promoting mental health for at-risk children and youth*. New York, NY: Aiken.
- Corson, S. A., Corson, E. O. L., Gwynne, P. H., & Arnold, L. E. (1977). Pet dogs as nonverbal communication links in hospital psychiatry. *Comprehensive Psychiatry*, *18*(1), 61–72.
- Davis, E., Davies, B., Wolfe, R., Raadsveldt, R., Heine, B., Thomason, P., ... Graham, H. K. (2009). A randomized controlled trial of the impact of therapeutic horse riding on the quality of life, health, and function of children with cerebral palsy. *Developmental Medicine & Child Neurology*, *51*(2), 111–119. doi:10.1111/j.1469-8749.2008.03245.x
- DeLuca, C., Hutchinson, N. L., deLugt, J. S., Beyer, W., Thornton, A., Versnel, J., ... Munby, H. (2010). Learning in the workplace: Fostering resilience in disengaged youth. *Work*, *36*, 305–319. doi:10.3233/WOR-2010-1032
- Durlak, J. A., Weissberg, R. P., & Pachan, M. (2010). A meta-analysis of after-school programs that seek to promote personal and social skills in children and adolescents. *American Journal of Community Psychology*, *45*, 294–309.
- Edwards, O. W., Mumford, V. E., & Serra-Roldan, R. (2007). A positive youth development model for students considered at-risk. *School Psychology International*, *28*(1), 29–45. doi:10.1177/0143034307075673
- Elias, M. J., & Haynes, N. M. (2008). Social competence, social support, and academic achievement in minority, low-income, urban elementary school children. *School Psychology Quarterly*, *23*(4), 474–495. doi:10.1037/1045-3830.23.4.474
- Erikson, E. (1963). *Childhood and society*. (2nd ed.). New York, NY: W. W. Norton & Company.

- Esposito, L., McCune, J. A., & Maholmes, V. (2011). Directions in human-animal interaction research: child development, health, and therapeutic interventions. *Child Development Perspectives, 5*, 205–211.
- Ewing, C. A., MacDonald, P. M., Taylor, M., & Bowers, M. J. (2007). Equine-facilitated learning for youths with severe emotional disorders: A quantitative and qualitative study. *Child Youth Care Forum, 36*, 59–72. doi:10.1007/s10566-006-9031-x
- Fine, A. (2010). Incorporating animal-assisted therapy into psychotherapy: guidelines and suggestions for therapists. In A. Fine (Ed.), *Handbook on Animal Assisted Therapy: Theoretical foundations and guidelines for practice*. (pp. 169–191). Burlington, MA: Elsevier.
- Fine, A. H. (Ed.). (2010). *Handbook on Animal Assisted Therapy*. New York, NY: Elsevier.
- Friedmann, E., Katcher, A. H., Lynch, J. J., & Thomas, S. A. (1980). Animals companions and one-year survival of patients after discharge from a coronary unit. *Public Health Reports, 95*, 307–312.
- Friesen, L. (2010). Exploring animal-assisted programs with children in school and therapeutic contexts. *Early Childhood Education Journal, 37*, 261–267. doi:10.1007/s10643-009-0349-5
- Geist, T. S. (2011). Conceptual framework for animal assisted therapy. *Child and Adolescent Social Work Journal, 28*, 243–256. doi:10.1007/s10560-011-0231-3
- Granger, B. P., Kogan, L., Fitchett, J., & Helmer, K. (1998). A human-animal intervention team approach to animal-assisted therapy. *Anthrozoos, 11*(3), 172–176.

- Greene, J. C., Caracelli, V. J., & Graham, W. F. (1989). Toward a conceptual framework for mixed-method evaluation designs. *Educational Evaluation and Policy Analysis, 11*(3), 255–274.
- Gresham, F. M., & Elliott, S. N. (2008). *Social Skills Improvement System*. Minneapolis, MN: Pearson.
- Holmes, C. M. P., Goodwin, D., Redhead, E. S., & Goymour, K. L. (2012). The benefits of equine assisted activities: An exploratory study. *Child and Adolescent Social Work Journal, 29*, 111–122. doi:10.1007/s10560-011-0251-z
- Hooker, S. D., Holbrook Freeman, L., & Stewart, P. (2002). Pet therapy research: A historical review. *Holistic Nursing Practice, 17*(1), 17–23.
- Jalongo, M. R., Astorino, T., & Bomboy, N. (2004). Canine visitors: The influence of therapy dogs on young children's learning and well-being in classrooms and hospitals. *Early Childhood Education Journal, 32*, 9–16.
- Jenkins, C. D. (1976). Recent evidence reporting psychologic and social risk factors for coronary disease. *New England Journal of Medicine, 294*, 1033–1038.
- Kaiser, L., Spence, L. J., Lavergne, A. G., & Vanden Bosch, K. L. (2004). Can a week of therapeutic riding make a difference? -- A pilot study. *Anthrozoos, 17*(1), 63–72.
- Karol, J. (2007). Applying a traditional individual psychotherapy model to equine-facilitated psychotherapy (EFP): Theory and method. *Clinical Child Psychology and Psychiatry, 12*, 77–90.
- Katcher, A. H., & Beck, A. M. (2010). Newer and older perspectives on the therapeutic effects of animals and nature. In *Handbook on Animal Assisted Therapy: Theoretical foundations and guidelines for practice*. (pp. 49–58). New York, NY: Elsevier.

- Kazdin, A. E. (2010). Methodological standards and strategies for establishing the evidence base of animal-assisted therapies. In A. H. Fine (Ed.), *Handbook on Animal Assisted Therapy: Theoretical foundations and guidelines for practice*. (pp. 519–546). New York, NY: Elsevier.
- Keeling, L. J., Jonare, L., & Lanneborn, L. (2009). Investigating horse-human interaction: The effect of a nervous human. *The Veterinary Journal*, *181*, 70–71.
- Kelly, S. (2013). Horses for courses: Exploring the limits of leadership development through equine-assisted learning. *Journal of Management Education*, *38*(2), 216–233.
- Kemp, K., Signal, T., Botros, H., Taylor, N., & Prentice, K. (2014). Equine facilitated therapy with children and adolescents who have been sexually abused: A program evaluation study. *Journal of Child and Family Studies*, *23*, 558–566. doi:10.1007/s10826-013-9718-1
- Kern, J. K., Fletcher, C. L., Garver, C. R., Mehta, J. A., Grannemann, B. D., Knox, K. R., ... Trivedi, M. H. (2012). Prospective trial of equine assisted activities in autism spectrum disorder. *Alternative Therapies*, *17*(3), 14–20.
- Kirby, M. J. L., & Keon, W. J. (2006). *Out of the shadows at last: Transforming mental health, mental illness and addiction services in Canada*. Parliament of Canada. Retrieved from <http://www.parl.gc.ca/Content/SEN/Committee/391/soci/rep/pdf/rep02may06part1-e.pdf>
- Kirschner, P. A., Sweller, J., & Clark, R. E. (2006). Why minimal guidance during instruction does not work: An analysis of the failure of constructivist, discovery, problem-based, experiential, and inquiry-based teaching. *Educational Psychologist*, *41*(2), 75–86. doi:10.1207/s15326985ep4102_1

- Kruger, K. A., & Serpell, J. A. (2010). Animal assisted interventions in mental health: definitions and theoretical foundations. In A. Fine (Ed.), *Handbook on Animal Assisted Therapy: Theoretical foundations and guidelines for practice*. (pp. 32–48). Burlington, MA: Elsevier.
- Land, G., Errington-Povalac, E., & Paul, S. (2001). The effects of therapeutic riding on sitting posture in individuals with disabilities. *Occupational Therapy in Health Care, 14*, 1–12.
- Laursen, E. K., & Birmingham, S. M. (2003). Caring relationships as a protective factor for at-risk youth: An ethnographic study. *Families in Society, 84*(2), 240–246.
- Lentini, J. A., & Knox, M. (2009). A qualitative and quantitative review of equine facilitated psychotherapy with children and adolescents. *The Open Complementary Medicine Journal, 1*, 51–57.
- Levinson, B. M. (1969). *Pet-oriented Child Psychotherapy*. Springfield, IL.: Charles C. Thomas.
- MacKinnon, J., Noh, S., Lariviere, J., MacPhail, A., Allan, D., & Laliberte, D. (1995). A study of therapeutic effects of horseback riding for children with cerebral palsy. *Families in Society, 84*, 240–246.
- Mays, N., & Pope, C. (1995). Rigour and qualitative research. *The British Medical Journal, 311*, 109–112.
- McGibbon, N., Benda, W., Duncan, B., & Silkwood-Sherer, D. (2009). Immediate and long-term effects of hippotherapy on symmetry of adductor muscle activity and functional ability in children with spastic cerebral palsy. *Physical and Medical Rehabilitation, 90*(6), 966–974. doi:10.1016/j.apmr.2009.01.011
- Moote, G. T., Jr., Smyth, N. J., & Wodarski, J. S. (1999). Social skills training with youth in school settings. *Research on Social Work Practice, 9*(4), 427–465.

- Onwuegbuzie, A. J., & Leech, N. J. (2006). Linking research questions to mixed methods data analysis procedures. *The Qualitative Report*, 11(3), 474–498.
- Parelli, P., & Parelli, L. (2012). Looking at equine assisted counseling from the horse's perspective. In K. S. Trotter (Ed.), *Harnessing The Power of Equine Assisted Counseling* (pp. 17–26). New York, NY: Routledge.
- Piaget, J. (1983). Piaget's theory. In P. Mussen (Ed.), *Handbook of Child Psychology* (4th ed., Vol. 1). New York, NY: Wiley.
- Prince-Embury, S. (2007). *Resiliency Scales for Children and Adolescents*. San Antonio, TX: Pearson.
- Rak, C. F., & Patterson, L. E. (1996). Promoting resilience in at-risk children. *Journal of Counseling and Development*, 74(4), 368–373.
- Reynolds, C. R., & Kamphaus, R. W. (2004). *BASC-2 behavioral assessment system for children manual*. (2nd ed.). Circle Pines, MN: AGS Publishing.
- Robson, C. (2011). *Real World Research*. Cornwall, UK: John Wiley & Sons Ltd.
- Rossbach, K. A., & Wilson, J. P. (1992). Does a dog's presence make a person appear more likable?: Two studies. *Anthrozoos*, 5(1), 40–51.
- Schneider, J. S. (2012). Techniques that explore anxiety and depression. In K. S. Trotter (Ed.), *Harnessing The Power of Equine Assisted Counseling* (pp. 73–117). New York, NY: Routledge.
- Schultz, P. N., Remick-Barlow, G. A., & Robbins, L. (2007). Equine-assisted psychotherapy: A mental health promotion/intervention modality for children who have experienced intra-family violence. *Health and Social Care in the Community*, 15, 265–271.

- Selby, A., & Smith-Osborne, A. (2012). A Systematic Review of Effectiveness of Complementary and Adjunct Therapies and Interventions Involving Equines. *Health Psychology*, 32(4), 418–432. doi:10.1037/a0029188
- Shaw, D. M. (2013). Man's best friend as reading facilitator. *The Reading Teacher*, 66(5), 363–371. doi:10.1002/TRTR.1136
- Siegel, W. L. (2004). The role of animals in education. *ReVision*, 27(2), 17–26.
- Smith-Osborne, A., & Selby, A. (2010). Implications of the literature on equine-assisted activities for use as a complementary intervention in social work practice with children and adolescents. *Child and Adolescent Social Work Journal*, 27, 291–307. doi:10.1007/s10560-010-0201-1
- Stake, R. E. (2010). *Qualitative Research*. New York, NY: Guildford Press.
- Trotter, K. S. (2012). Equine assisted interventions in mental health. In K. S. Trotter (Ed.), *Harnessing The Power of Equine Assisted Counseling* (pp. 1–15). New York, NY: Routledge.
- Trotter, K. S., Chandler, C. K., Goodwin-Bond, D., & Casey, J. (2008). A comparative study of the efficacy of group equine assisted counseling with at-risk children and adolescents. *Journal of Creativity in Mental Health*, 3(3), 254–284. doi:10.1080/15401380802356880
- Waite, C., & Bourke, L. (2013). “It's different with a horse”: horses as a tool for engagement in a horse therapy program for marginalised young people. *Youth Studies Australia*, 32(4), 15–24.
- Walsh, E., & Eggert, L. L. (2007). Suicide risk and protective factors among youth experiencing school difficulties. *International Journal of Mental Health Nursing*, 16, 349–359. doi:10.1111/j.1447-0349.2007.00483.x

- Wellman, H. M. (1990). *The child's theory of mind*. Cambridge, MA: MIT Press.
- Wells, M., & Perrine, R. (2001). Pets go to college: The influence of pets on students' perceptions of faculty and their offices. *Anthrozoos, 14*(3), 161–167.
- Werner, E. E., & Smith, R. S. (2001). *Journey from childhood to midlife: Risk, resilience, and recovery*. Ithaca: Cornell University Press.
- Westerman, P., Hargreaves, H. A., Westerman, D., & Verge, M. (2012). Techniques that improve self-esteem and self-worth. In K. S. Trotter (Ed.), *Harnessing The Power of Equine Assisted Counseling* (pp. 219–265). New York, NY: Routledge.
- Youth Diversion. (2014). Rebound Program Evaluation. Retrieved March 1, 2014, from <http://www.youthdiversion.org/index.cfm/programs/rebound/program-details/>

Appendix A

Equine Assisted Learning Program Format

The program was four days in length. Each day ran from 9:00 a.m. to 3:00 p.m. and was divided into two sessions (morning and afternoon). The session objectives covered the following areas:

- Leadership skills
- Goal setting
- Self-esteem, self-concept, and self-efficacy
- Communication
- Problem solving
- Conflict resolution
- Anger management and calming strategies

Example session outline:

1. Check in – this process allowed the youth to discuss what they were bringing into the session that day (e.g. brag and drag). This also gave the instructor an idea of what moods the youths were in and ways to handle this.
2. After check in, an outline of the session was provided and session objectives were discussed (e.g., communication strategies). Additionally, the goals set by each youth were reviewed.
3. The next part of the session included a ‘horse learning activity’ such as: Catch and Release, Life’s Little Obstacles, Give and Take, and Equine Billiards. During the horse activity, the instructor observed the behaviour of the participants and horses as well as their interactions. The instructor intervened when necessary.

4. After the completion of the horse activity a discussion was led by the instructor. The discussion was used as a vehicle for transferring the information learned with the horse into the daily lives of the youths, and to contextualize the youths' experiences in the activity. Open ended questions were used to elicit information and focus on the positive development of each youth. The youths were given the opportunity to ask any questions about the activity and discuss what took place.

Appendix B

Horse Activity Examples

Catch and Release

In this horse activity teams of two youth are handed a halter and lead rope and asked to go into the pasture and halter a horse to the best of their ability with little or no direction from the instructor. The instructor will observe the participant reactions to determine if a) he/she picked the horse that came to him/her, b) he/she went up to the horse, or c) he/she was fixated on doing the task the 'right way'. All of these factors are important in assessing the participant's intrapersonal dynamics. The instructor will observe the following:

1. Did the participants use all of the resources available to them? Did they ask other members of the team or other students to assist them?
2. What, if any, level of frustration was evoked in participants as a result of not knowing 'how to do it right,' not asking for help, giving up, or difficulty thinking outside the box.

Upon completion of this task participants will process the experience immediately. They will have the opportunity to share their experiences while the instructor and volunteers share their observations. The instructor will then assist the participants to translate their experiences into enhanced self-awareness and an understanding of how this would help them cope with other life challenges, such as family members and peers.

Interacting with the horse and observing the horse's reactions in this exercise may help to increase the participant's awareness of the impact of their own thoughts, words, and actions. This may help the youth to better manage their lives and foster positive relationships with others.

Life's Little Obstacles

In this activity the participants are asked to get a horse to walk over a low jump placed in the arena, or through a series of obstacles. While engaging with the horse there can be no physical touching of the horse, no halter or lead ropes, no bribing the horse with food, and no verbal communication to the other group members. Before the activity begins, the group is allowed to talk to each other and develop a plan. During the activity, time outs will be called infrequently by the instructors in order for the group to speak with each other. It is up to the participants to work together to come up with a creative solution. This activity is designed to act as a metaphor for situations participants may be struggling with in their lives. The rules of this activity prevent the group from using the tools people commonly use in relationships: touch, bribery, and verbal communication. The rules were designed to move the participants away from their comfort zones and help them discover new or creative solutions to problems.

The intent of this exercise is to (a) allow the group to struggle, become frustrated, and then achieve success, (b) process after each attempt at the activity to discover what helped them be successful or not successful, (c) relate what happened during the obstacle exercise with what happens in real life situations.

Both of these exercises are thought to be beneficial to participants because horses react to participants' body language, giving them immediate feedback as to what they are communicating verbally and non-verbally. Participants learn that if they wanted to change the horse's behaviour, they have to change their behaviour first.

Appendix C

Table 7
Paired Samples t-test Statistics, Effect Size, and Cronbach's Alpha for all Variables.

	<i>t</i>	<i>df</i>	<i>p</i>	Holm- Bonferroni Alpha	<i>d</i>	Cronbach's α	
						Time 1	Time 2
Mastery *	3.20	12	.008	n/a	.47	.95	.94
Optimism*	3.72	12	.003	.016	.53	.89	.87
Self-Efficacy*	2.67	12	.021	.025	.44	.89	.88
Adaptability	1.94	12	.076	.05	.34	.82	.67
Relatedness*	2.57	12	.025	n/a	.70	.85	.92
Trust	1.94	12	.076	.025	.64	.63	.67
Support*	3.38	12	.005	.013	.69	.67	.70
Comfort	2.26	12	.043	.017	.77	.75	.82
Tolerance	1.67	12	.121	.05	.35	.63	.83
Reactivity	1.13	11	.282	n/a	.18	.93	.97
Sensitivity	1.32	11	.214	n/a	.21	.79	.84
Recovery	1.24	11	.241	n/a	.18	.89	.98
Impairment	0.69	11	.504	n/a	.14	.90	.85
Social Skills*	2.36	11	.038	n/a	.44	.96	.97
Communication	0.76	11	.463	.016	.22	.65	.86
Cooperation	0.34	11	.738	.025	.06	.89	.82
Assertion	1.32	11	.214	.013	.31	.78	.80
Responsibility	0.00	11	1.00	.05	0	.77	.87
Empathy*	3.50	11	.005	.008	.85	.79	.87
Engagement	3.05	11	.011	.01	.88	.77	.87
Self-Control*	3.83	11	.003	.007	.54	.86	.86
Problem Behaviours	-0.22	11	.83	n/a	.02	.95	.97
Externalizing Symptoms	0.76	11	.46	.017	.14	.90	.93
Bullying	-0.55	11	.59	.025	.18	.35	.78
Hyperactivity/Inattention	0.53	11	.60	.05	.08	.89	.93
Internalizing Symptoms*	-4.30	11	.001	.01	.19	.91	.95

* $p < .05$ after Holm-Bonferroni correction

Appendix D

Sample Interview Questions

Structured:

1. This program was created to help youth build positive social skills. Would you say this program has been highly effective, somewhat effective, or not at all effective?
2. Did you ever feel that you were not in control of a situation?
 - a. How did you cope with this?
 - b. Tell me about how you would react if that happened now.

Semi-structured and open-ended:

1. What has been the most enjoyable aspect of this program for you?
 - a. Tell me about the horses.
 - b. Tell me about the other animals.
2. Tell me about your favourite moment in the program.
3. Tell me about something you really did not enjoy about the program.
4. In what ways do you think this program was good?
5. How do you feel after finishing the program?
6. Tell me about your interactions with the people running the program. Remember to keep names confidential if you are going to tell me about a specific story.
 - a. How did the volunteers give you support?

Appendix E



July 15, 2013

Ms. Mary Bouchard
Master's Student
Faculty of Education
Duncan McArthur Hall
Queen's University
511 Union Street
Kingston, ON K7M 5R7

GREB Ref #: GEDUC-683-13; Romeo # 6010262

Title: "GEDUC-683-13 The effects of equine assisted activities on youth social skills and resiliency"

Dear Ms. Bouchard:

The General Research Ethics Board (GREB), by means of a delegated board review, has cleared your proposal entitled "**GEDUC-683-13 The effects of equine assisted activities on youth social skills and resiliency**" for ethical compliance with the Tri-Council Guidelines (TCPS) and Queen's ethics policies. In accordance with the Tri-Council Guidelines (article D.1.6) and Senate Terms of Reference (article G), your project has been cleared for one year. At the end of each year, the GREB will ask if your project has been completed and if not, what changes have occurred or will occur in the next year.

You are reminded of your obligation to advise the GREB, with a copy to your unit REB, of any adverse event(s) that occur during this one year period (access this form at https://eservices.queensu.ca/romeo_researcher/ and click Events - GREB Adverse Event Report). An adverse event includes, but is not limited to, a complaint, a change or unexpected event that alters the level of risk for the researcher or participants or situation that requires a substantial change in approach to a participant(s). You are also advised that all adverse events must be reported to the GREB within 48 hours.

You are also reminded that all changes that might affect human participants must be cleared by the GREB. For example you must report changes to the level of risk, applicant characteristics, and implementation of new procedures. To make an amendment, access the application at https://eservices.queensu.ca/romeo_researcher/ and click Events - GREB Amendment to Approved Study Form. These changes will automatically be sent to the Ethics Coordinator, Gail Irving, at the Office of Research Services or irvingg@queensu.ca for further review and clearance by the GREB or GREB Chair.

On behalf of the General Research Ethics Board, I wish you continued success in your research.

Yours sincerely,

A handwritten signature in cursive script that reads "John D. Freeman".

John Freeman, Ph.D.
Professor and Acting Chair
General Research Ethics Board

cc: Dr. Derek Berg, Faculty Supervisor
Dr. Don Klinger, Chair, Unit REB
Erin Wicklam, c/o Graduate Studies and Bureau of Research