BOARDING SCHOOL STUDENTS'S PERCEPTION OF BEING INVOLVED IN A HORSE PROGRAM AND ACADEMIC SUCCESS: A STUDY FOCUSED ON SELF-EFFICACY, SELF-REGULATION, AND ACADEMIC MOTIVATION

by

Lincoln Ingraham Davie

A thesis submitted in partial fulfillment
of the requirements for the degree

of

Master of Education

in

Education

MONTANA STATE UNIVERSITY

May 2014

©COPYRIGHT

by

Lincoln Ingraham Davie

2014

All Rights Reserved

ACKNOWLEGEMENTS

I would like to first, and foremost, acknowledge and thank my advisor and chair, Dr. Jayne Downey, for her assistance and support throughout the process of developing this thesis. I would also like to thank my committee members, Dr. Art Bangert and Dr. Shannon Arnold for their assistance in supporting me in developing this research.

TABLE OF CONTENTS

1. INTRODUCTION 1

Introduction to the Study 1
Therapeutic Opportunity for Students 5
Transitioning to a Boarding School 6
Problem Statement 7
Purpose Statement 8
Research Questions 9
Context 9
Terms Used 10
Limitations and Delimitations 11

2. LITERATURE REVIEW 12

Outdoor Education Programs 12
Therapeutic Riding 15
Self-Efficacy 19
Self-Regulation 23
Academic Motivation 27
Effect on Academic Achievement 30

3. METHODOLOGY 33

Research Design 33
Participants 34
Instruments 34
Procedure 38
Data Analysis 39
Ethical Considerations 40
Summary 41

4. RESULTS 42

First Semester Data 42
Self-Efficacy for Self-Regulated Learning 42
Self-Efficacy for Academic Achievement 43
Academic Motivation Scale 44
Second Semester Data 46
Self-Efficacy for Self-Regulated Learning 46
Self-Efficacy for Academic Achievement 47
Academic Motivation Scale 48

TABLE OF CONTENTS – CONTINUED

Qualitative Results 50
Positive Perception with Ability to Achieve 51
Negative Perception with Ability to Achieve 52

5. DISCUSSION 54

Findings 54
Relationship of Previous Experience 57
Student Perception of Impact on School Success 58
Recommendation for Further Study 59
Potential Limitations 60
Conclusions and Implications 61
Conclusion 62

REFERENCES CITED 63

APPENDICES 68

APPENDIX A: Self-Efficacy for Self-Regulated Learning
Self-Efficacy for Academic Achievement 69
APPENDIX B: Academic Motivation Scale 72
APPENDIX C: Qualitative Question 76

LIST OF TABLES

Table Page

1. Descriptive Statistics for Self-Regulated Learning Mean Scores by Group. 42

2. Descriptive Statistics for Self-Efficacy for Academic Achievement Mean Scores by Group 44

3. Descriptive Statistics for Academic Motivation Mean Scores by Group 45

4. Descriptive Statistics for Self-Regulated Learning Mean Scores by Group. 47

5. Descriptive Statistics for Self-Efficacy for Academic Achievement Mean Scores by Group 48

6. Descriptive Statistics for Academic Motivation Mean Scores by Group 50

ABSTRACT

Previous research on therapeutic riding has mostly focused on the physical and cognitive benefits of working with horses, for people with physical or developmental disorders. Little research has looked into the potential benefits that working with horses can bring to normal functioning adolescents. Also, little has been studied about the academic benefits of working with horses. The purpose of this study was to examine the perception of boarding school students who are involved in a horse program and how their involvement impacts their ability to succeed academically. More specifically, the study investigated the perceived relationship of being involved in a riding program and working with horses and students' perceptions of success seen through the lens of self-efficacy, self-regulation, and academic motivation. Further, this study investigates whether previous equine experience has a relationship with boarding school students' perception of their self-efficacy, self-regulation, and academic motivation. The study found a common positive perception where 64 percent of the students viewed being involved in the horse program having a positive influence on their ability to succeed academically. Additionally, this research supports the utilization of a horse program in fostering the development of self-regulation, and promotes the transfer of cognitive skills into the academic domain.

CHAPTER 1

INTRODUCTION

Introduction to the Study

In support of developing adolescents and their academic success, major focus by educational reform movements has been placed in the realms of the STEM (Science, Technology, Engineering, and Mathematics) fields. In the wave of school reform, less focus has been paid to the arts and outdoors (Mainella, Agate, & Clark, 2011). However, the utilization of the outdoors as a learning environment, and the promotion of academic achievement, warrants investigation. Fewer opportunities are being allowed for outdoor access despite an abundance of support for the benefits of outdoor exposure (Mainella, et al., 2011). Free exposure to the outdoors in the realm of recess has drawn support despite the reduction of access: "Principals overwhelmingly believe recess has a positive impact not only on the development of student's social skills, but also on achievement and learning in the classroom" (Mainella et al., 2011, p 93). Recently, a general trend in addressing the lack of outdoor experience, and the consequences created by sedentary lifestyles has become more of a focal point. There are now political policies to better support the value of outdoor play. In 2010, First Lady Michelle Obama's Let's Move: America's Move to Raise a Healthier Generation of Kids was established to combat the negative effects of sedentary lifestyle; additionally, the campaign established a branch focused on getting children outside (Let's Move Outside) (Mainella et al., 2011).

A further issue is seen with today's youth spending less and less time in the outdoors. Studies associated with the Kaiser Family Foundation have found that children between the ages of eight and 18 year old spend an average of seven hours thirty-eight minutes each day with electronic devices (Mainella et al., 2011). Significant consequences can occur with the lack of outdoor exposure with youth. These consequences are seen in the areas of health, fitness, and development (Mainella et al., 2011). Access to the outdoors, with a focus towards the promotion of academics, has shown to promote physical fitness, mental health, and cognitive development in adolescents (Mainella et al., 2011).With the positive influences of the outdoors, coupled with the umbrella movement of experiential education, greater focus is warranted with the potential academic benefits derived from outdoor programs. Experiential education, as defined by Kraft and Sakofs (1988), derives valuable opportunities for academic development as it focuses on the development of the individual:

> Experiential education is the process of actively engaging students in an authentic experience that will have benefits and consequences. Students make discoveries and experiment with knowledge themselves instead of hearing or reading about the experiences of others. Students also reflect on their experiences, thus developing new skills, new attitudes, and new theories or ways of thinking (Ewert & Garvey, 23).

With the goal of promoting academic achievement, the movement towards experiential education has served as a catalyst to promote success in students. John Dewey, who was vital to the development of experiential education, preached the need to place the learner in the center of the learning process and utilize the teacher as a guide and coach (Panicucci, 2007).

Outdoor education offers the individual the benefits derived from experiential education, but with different activities that rely more heavily on the natural world. It is with the addition of nature that these programs offer a unique opportunity for growth and excitement as both experiential education, and nature itself, offer the individual opportunities for internal growth. The relationship offers the opportunity to promote academic achievement as benefits derived from outdoor education including cognitive development which is vital to the success of a student. Outdoor programs offer the individual an opportunity to grow by gaining insight into the self, by gaining experience in how to bond and grow with others, and by gaining an appreciation for, and nurture from, nature (Wattchow & Brown, 2011, p. xvii).

One approach to supporting adolescents' academic achievement through outdoor education is to focus on children in their natural environments which includes experience with animals. Research has found that animals tend to be a common element in a child's upbringing. In fact, according to a 1997 survey by the American Veterinary Association, "70% of all households with children younger than age six and 78% of all households with children older than six have pets (Melson, 2003, p. 32). However, the effect of youth experience with animals has not been thoroughly studied. Even though current theoretical paradigms "dominating the study of child development emphasizes the importance of studying children within their natural occurring environments" (Melson, 2003, p. 32), limited research has focused on the benefits of animals in the development of youth. The National Institutes of Health (NIH) held a conference in 1987 on the Health Benefits of Pets (Esposito, McCune, Griffin, & Maholmes, 2011). The studies presented

at this conference suggested that children attribute concepts of love, affection, companionship, intimacy, and nurturance to their relationships with companion animals (Esposito et al., 2011). Over 20 years later, in 2008, the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) joined up with the Waltham Centre for Pet Nutrition of Mars to further explore the relationship between pets and child development (Esposito et al., 2011). This emerging research is beginning to show that animals have the ability to increase a child's cognitive growth; this potential increase in learning happens by creating space for emotional support (Esposito et al., 2011).

Research has shown that animals can serve a nurturing role for children in their upbringing and daily lives. In fact, the nurturing role that animals can serve during a child's upbringing are considered to be an important part of a child's development:

> For example, when asked to name the 10 most important individuals in their lives, 7- and 10-year-olds included, on average, two pets…[and] were as likely to talk to their pets about sad, angry, happy, and secret experiences as with their siblings. (Melson, 2003, p. 34-35).

Research has suggested that animals are often perceived to support a child's development of social skills and aid in creating greater bonds within a community (Esposito et al., 2011). Frame (2006) stresses the importance of animals "based upon the supposition that some individuals may be comforted by the warmth and connection to another living being and that a feeling of unconditioned approval and acceptance are achieved through this relationship" (p. 4).

Therapeutic Opportunity for Students

Much of the research on the benefits of animals has occurred in the therapeutic realm. There are many forms of animal assisted therapies such as using animals during counseling (Greenwald, 2000). Previous research on the inclusion of animals in the therapeutic realm has found that "animals may open the door, so to speak, to garner attention, to initiate discussions, and to establish the trust needed in the therapeutic process" (Ewing, MacDonald, Taylor, & Bowers, 2007, p. 60).

One of the growing practices of using animals in therapy is equine facilitated therapy, which can be utilized in many different circumstances. The Professional Association of Therapeutic Horsemanship International (PATHInt) (formerly NARHA) is the leading organization utilizing four main therapeutic practices: hippotherapy (physical therapy on a horse), therapeutic riding therapy, vaulting, and equine assisted/facilitated psychotherapy (EAP/EFP) (Frame, 2006). One of the great benefits of using horses for therapy is their ability to serve as companions while also offering nonjudgmental acceptance (Frame, 2006). This concept has been stressed in the use of horses in therapy: "horses' behavior toward and interactions with humans are perceived as non-judgmental, which has a therapeutic effect similar to that of a human counselor or psychotherapist" (Stebbins, 1997, p.18-19). The utilization of horses in the therapeutic realm is not a new concept as horses have long been part of society and the benefits have been clearly recognized. Even as early as 1670, Lord Thomas Sydenham, an English physician, wrote, "There is no better treatment for the body and soul than many hours each week in the saddle, riding the horse" (Hayden, 2005, p. 60).

There are many factors that make horses beneficial in the therapeutic realm. The nature of the horse lends itself well to the therapeutic process, where assertive leadership qualities aid in in communication. This therapeutic allowance is based off of the concept that horses are animals of prey that survive based upon a system of communication and a herd hierarchical social system; it is vital to the survival of the herd that cooperation and the hierarchy are maintained (Frame, 2006). Interestingly, "this relationship between horses may also be transferred to humans, once trust and dominance through cooperation and mutual respect is achieved" (Frame, 2006, p. 5-6). Furthermore, horses allow adolescents to learn responsibility and give them the opportunity to master new skills (Kaiser, Smith, Heleski, & Spence, 2006).

Transitioning to a Boarding School

From an educational standpoint, transitions in schooling are a challenging time period. These transitions, particularly relevant with entering a boarding school as a freshman, can have a negative impact on the potential academic success of the individual. Hayden (2005) stresses that "changes from elementary, to junior high, and then high school are a major stressor for most adolescents. Most teenagers are able to accommodate this transition, but changes in performance and self-esteem may occur" (p. 23). Potential support structures are helpful in promoting academic success for the individual; a horse program can potentially serve as a catalyst for this needed support as these students are likely to experience challenges in their new settings. Teenagers typically go through a period of feeling misunderstood. Teram and Ungar (2009) suggest that all youth will experience some adverse life circumstances and may struggle to

overcome these obstacles. Previous literature indicates the benefits of therapeutic riding programs include aspects such as increasing self-esteem, self-worth, and reducing depression and anger (Ewing et al., 2007). The transition to a boarding school, and more specifically, leaving the comfort of home, can be a challenging experience. As a result of this potentially challenging experience, finding a support system such as a group of peers can aid the individual in their academic and social transition. Based on previous literature of the benefits of horses, the horse may fill this role as well:

> Behavior around and on the horses presents a symbolic representation of how each person approaches unfamiliar and perhaps challenging experiences in their daily lives…The non-verbal communication which takes place between a rider and horse where they respond to each other's cues leaves them to interact as if in a dance. This communication requires attentive listening, signaling and responding. Having to manage the ride while respecting the horse's needs and experience presents a unique model for healthy relationships. (Hayden, 2005, p. 62).

Problem Statement

Previous research on therapeutic riding has mostly focused on the physical and cognitive benefits of working with horses, for people with physical or developmental disorders. One study with at-risk and special education children found significant reductions in anger and significant improvements in parental perception of behavior at the completion of a therapeutic riding program (Kaiser, Smith, Heleski, & Spence, 2006). Another study found significant improvements in socialization with autistic youth after a 12-week therapeutic riding program (Bass, Duchowny, & Llabre, 2009).

A small body of research has begun to examine the potential benefits that working with horses can bring to normal functioning adolescents. For example, Kaiser, Spence,

Lavergne, and Vanden Bosch (2004) found that a five day therapeutic riding camp could reduce anger among 16 normal functioning youth. Additionally, they found that quality of life and perceived self-competence improved, though not significantly. Further, there has been research with 4-H youth and the development of life skills. A study conducted by Pennsylvania State University and the American Youth Horse Council surveyed 982 youth, ages 12-18, participating in 4-H horse programs on horsemanship skills and life skills (Smith, Swinker, Comerford, Radhakrishna, & Hoover, 2006). They found that there was a positive relationship between overall horsemanship and life skills (Smith et al., 2006). However, more study is needed of this relationship, and more is needed to understand the impact that working with horses has on academic outcomes particularly in the realm of the promotion of cognitive skills such as self-regulation, self-efficacy, and academic motivation.

Purpose Statement

The purpose of this study is to examine the perception of boarding school students who are involved in a horse program regarding how their involvement impacts their ability to succeed academically. More specifically, the study will investigate the perceived relationship of being involved in a riding program and working with horses and students' perceptions of success seen through the lens of self-efficacy, self-regulation, and academic motivation. Further, this study investigates whether previous equine experience has a relationship with boarding school students' perception of their self-efficacy, self-regulation, and academic motivation. This study serves as an exploratory

study to investigate student perceptions of being involved in a horse program. With a focus on cognitive functions, this study investigates the potential relevant use of a horse program in promoting academic success.

Research Questions

This study of freshmen participating in a boarding school horse program is guided by the following research questions:

1. How do students perceive program involvement to influence their self-efficacy, self-regulation, and academic motivation?

2. Do students with more extensive previous experience working with horses report increased levels of self-efficacy, self-regulation, or academic motivation?

Context

The Thacher School, founded in 1889, in Ojai, California is a college, preparatory academy that has a history of academic rigor. A unique aspect of the school is that working with horses is part of the curriculum and culture of the school. In fact, all incoming freshmen are required to participate in the horse program and care for a horse during their first year. Students are not only required to take riding lessons, but they are also required to take responsibility for the care and cleaning of a horse.

Terms Used

Normal functioning youth: individuals who are not known to have physical or psychological disability, and no known history of psychotropic medications (Kaiser et al., 2004).

Horse program: The Thacher School's horse program consists of students being assigned to a horse, being responsible for caring for that horse (feeding and mucking stalls), taking riding lessons, a competing in an end of the year gymkhana (games on horses) (Cullen, n.d.).

Therapeutic riding: an experiential therapeutic approach that uses contact with horses to promote physical, neuromuscular, emotional, social, and educational growth (Hayden, 2005).

Self-efficacy: a person's belief in his or her ability to succeed in specific situation (Rosen, Glennie, Dalton, Lennon, & Bozick, 2010).

Self-regulation: "an active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation, and behavior, guided and constrained by their goals and the contextual features in the environment" (Schunk, 2005) p. 173).

Academic motivation: "the process whereby goal-directed activity is instigated and sustained" (Schunk, Pintrich, and Meece, 2008, p. 4).

Academic achievement: achieving academic performance goals and developing mastery goals (Ormrod, 2012).

Limitations and Delimitations

A boarding school, and more specifically, a boarding school with a horse program has been selected as the population of study. Likewise, normal functioning youth have been selected as the population of interest with a focus on their cognitive development leading to academic success. The freshman class has been selected as the group of interest, because they are all required to participate in the horse program, and a semester of involvement is the time frame chosen for evaluation.

A major limitation to this study is that the population being studied is very unique and specific. Therefore, caution should be taken in generalizing any results to a population outside of the unique environment of The Thacher School, or generalizing to adolescents involved in horse programs. Further, a limitation will be that the results will be more specific to the freshmen class studied. Varying backgrounds and experiences will affect the results of this study.

CHAPTER 2

LITERATURE REVIEW

The literature review will examine six areas of focus pertaining to adolescent students involved in a riding program: a) Outdoor educational programs; b) the benefits of therapeutic riding; c) self-efficacy; d) self-regulation; e) academic motivation; and f) the effect of self-efficacy, self-regulation, and academic motivation on academic achievement.

Outdoor Education Programs

The impetus for the addition of more formal outdoor education began with the development of entities like the National Outdoor Leadership School (NOLS) and Outward Bound and originally gained in popularity in the United Kingdom in the early 20th century (Cook, 1999). This is seen with the formation in 1908 of the Boy Scout movement where membership in England spawned from 100,000 members in 1910 to well over one million members by 1922 (Cook, 1999). The utilization of the outdoors has long been practiced and enjoyed by many. However, the evolution of outdoor programs in the United Kingdom, where the focus shifted to more "rugged" outdoor pursuits, came about with The 1944 Education Act (Cook, 1999). In this Act, a large focus was to include the utilization of the outdoors in promoting the development of the character of the youth. Additionally, with the context of World War II, a goal of the Act was for "fitness for war and character training" (Cook, 1999, p. 157). After the war, the major focus shifted to promoting the development of the youth of Britain. Outward

Bound, started by Kurt Hahn after World War II, was established with a goal of: "fitness due to modern methods of locomotion; initiative due to the disease of spectatorship; memory due to the confused restlessness of modern life; skill due to the weakened tradition of craftsmanship; self-discipline due to the overuse of drugs; compassion due to the haste with which life is lived (Ewert and Garvey, 2007, p. 22).

Before the development of more rugged outdoor adventure pursuits in organized youth programs, camping programs were a focal in youth development. In Washington Connecticut, Camp Gunner, founded in 1861, was the first organized camp in the United States (Ewert and Garvey, 2007). As seen in the United Kingdom with a link to wartime, "when the Civil War began, the boys were eager to be soldiers, to march, and especially to sleep out in tents" (Ewert and Garvey, 2007, p. 21). As England began shifting towards more of an outdoor and adventure focused curriculum, this concept began to be implemented in the United States in the 1950s. Josh Miner, an American who taught at Hahn's Gordonstoun School in Scotland during the 1950s, was prominent in initiating the outdoor adventure education movement in the United States. Miner, an educator at Phillips Academy in Massachuesetts, was the major catalyst in the development of Outward Bound in the United States (Ewert and Garvey, 2007).

Outdoor programs can have lasting, positive effects on those who participate. For example, one study found that a ten-day outdoor program had positive influence on outcomes such as challenge acceptance, community action, leadership, and environmental connection with adolescent women (Allen-Craig & Hartley, 2012). Likewise, research has shown positive outcomes with semester length outdoor courses

(Sibthorp, Collins, Gookin, & Pohja, 2013). This study found significant results for student's initiative and self-control (Sibthorp et al., 2013). The researchers concluded that are many positive outcomes that can occur from being involved in an outdoor program. While it is difficult to speculate the exact change that is occurring, a "change of their perceptions of what is possible" is a vital opportunity for the individual involved (Sibthorp et al., 2013, p. 167). There is a dearth of research examining the possible benefits of outdoor programs, such as research looking into cognitive growth; however, limitations in this research make it difficult to ascertain the actual change that is occurring.

The utilization of the outdoors has been shown to be an effective tool for promoting academic achievement. One study showcases the ability to promote improved performance on standardized tests, reduction in classroom disruption, and increases student engagement and excitement for learning (Lieberman & Hoody, 1998). Additionally, Athman and Monroe (2004) found positive effects in promoting academic achievement motivation with ninth and 12^{th} grade students.

While the utilization of horses are not as common in outdoor programs, the inclusion of horses offers a unique opportunity for the participant to enjoy both the benefits of the outdoors as well as the bonding aspects of working with a horse. This unique combination has led to the development of horse packing trips offered by NOLS. Likewise, western inspired teen camp dude ranches, such as the Elk Creek Ranch which has been in operation since the late 1950s near Cody Wyoming, offer a unique combination of outdoor adventure and ranch life (Western Horseman, 2007). The

Thacher School, is one of only a few boarding schools that blend the benefits of an outdoor program and the utilization of horse ranches to help mold their students. The utilization of horses, which have the ability to serve as personal tutors to the students, offers the Thacher students a unique opportunity to enjoy the benefits derived from experiential education and the natural environment.

Therapeutic Riding

The utilization of horses for therapy began in the 1950s in Great Britain and was brought to the United States in 1967 (Kaiser et al., 2004). The movement was launched in England under the instruction of John Davies who aided returning amputees and blind soldiers after World War II (Greenwald, 2000). It became stronger in 1952 after Liz Hartel won the Olympic silver medal in dressage despite being a wheelchair bound polio victim. In the early years, researchers found that working with horses produced physical and neuromuscular benefits for those with special needs. In addition, the development of constructs such as self-esteem and confidence have been well documented with therapeutic riding. This is seen with studies like Iannone's (2003) study with emotionally disturbed youth. Subsequent research has also identified other benefits such as with youth with physical, mental, or social issues and with students that are classified as at-risk for school failure (Hayden 2005).

A large factor for the success of using horses is the nature of the horse itself. Bachi, Terkel, and Teichman (2011) focus on this element as to one of the main reasons for the success of this therapeutic practice. The horse is an animal of prey, and as a

result, relies on a herd hierarchy to ensure success and survival (Bachi et al., 2011). Bachi, Terkel, and Teichman (2011) stress this aspect:

> Horses are highly suitable for therapeutic work due to their being herd animals, for which cooperation is as important as competition, and the bonding among members is very strong. During the process of domestication horses have come to perceive humans as part of their herd in some aspects, which appears to provide the underlying basis for the bond between humans and horses. (p. 300).

This bond can create an environment where youth are empowered by taking a leadership role in the treatment process. Horses' survival instincts and gregarious nature allow for this companion animal to be a "mirror" agent for the youth.

> For example, the horse can directly reflect the client's emotional experience. If a client approaches a horse in fear, the horse may respond in kind and move away from that individual. The reactions of the horse and rider can be used metaphorically in therapy to represent other real life experiences of the client. (Hayden, 2005, p. 57-58).

The horse is seen as a mirror agent as it allows the participant's actions to be portrayed back to them in a controlled setting. The fact that the horse is a large animal capable of being ridden allows for, "a unique opportunity to experience deeper dimensions of the human-animal relationship" (Ewing et al., 2007, p. 60). Further, because of the immediate feedback given to the youth, the horse can serve as an accelerating agent in the treatment process. This is seen in previous research, where animals were found to be "a catalyst for social engagement and cohesiveness in communities" (Esposito et al., 2011, p. 206). This is evident from an Australian study by Wood, Giles-Corti and Bulsara (2005) that found animals created a common bond among neighbors as the animals served as icebreakers and aided in sparking conversations and neighborly interest (Esposito et al., 2011).

An additional challenge faced with at-risk youth is the social stigma that can accompany traditional therapy. By utilizing alternative therapy programs, such as therapeutic riding, dropout rates are minimized because it feels less formal than going to "therapy" (Frame, 2006). By engaging in a riding program, the students will experience the benefits of the mastery process that has been shown to decrease isolation, increase self-esteem and self-efficacy (Frame, 2006).

Kaiser et al's. (2004) pilot study "Can a Week of Therapeutic Riding Make a Difference?" highlights the value a horse program can have on the development of an adolescent, and is paramount to the current study. This study utilized normal functioning youth and it focused on utilizing a horse program in an educational format. The study was set up as a horse camp where therapeutic riding was combined with horse-related classroom instruction/activities that allowed for greater development of horse knowledge. Instruction included: "topics on horses, horse health, anatomy, breeds, stable management, and riding techniques" (Kaiser et al., 2004, p. 66). Additionally, recreational trail rides took place occasionally that allowed the individual participants to enjoy the opportunities to experience their new found knowledge of working with horses in more natural surroundings. This camp experience brings about similar opportunities as The Thacher School's horse program in that the camp is educational in nature and allows the extra benefit of riding on trails. Thus, it is possible that The Thacher School's program, which is significantly longer than this camp experience, will allow for similar benefits, and potentially because of the extended length, will allow for the improvements in quality of life and perceived self-competence.

A second body of research that is particularly relevant to the current study is the work focused on 4-H youth involved in horse programs. This research primarily focuses on the impact of 4-H horse programs and the development of life skills. This is well documented in Smith et al., (2006) study that found a significant positive relationship between overall horsemanship and life skills. The Smith et al. study, completed by Penn State University and the American Youth Horse Council, found this improvement of life skills with youth living in Pennsylvania and Colorado. This study utilized a population similar in age to the current study. The 4-H students in the Smith et al. study range from 12-18, and more importantly most of the participants (51.4%) were between 13 and 15 years old (Smith et al., 2006, p. 90). Further, this study found that in the development of life skills, with regards to horsemanship knowledge, an emphasis of "horsemanship skill, safety, health management, and nutrition in educational programming" is paramount. These are all skills that are addressed in The Thacher School's curriculum offering potential life skills development for the students.

Similar life skills results were duplicated with Nebraska 4-H youth (Anderson & Karr-Lilienthal, 2011). Utilizing a similar age population (68% of the respondents were between the ages of 13-16), this study provides some evidence of possible relationships between working in a horse program and the development of positive life skills and leadership (Anderson & Karr-Lilienthal, 2011, p. 2). The key findings from this study were that 80% of the participants indicated moderately to strongly that being involved in the 4-H horse program benefited their future college plans, and participants who competed in both riding and non-riding horse events scored greater on the Youth

Leadership Life Skills Development Scale than those who competed in just one event (Anderson & Karr-Lilienthal, 2011, p. 4-5). These results suggest that the adolescents may benefit not just from having the opportunity to ride horses, but more importantly, will benefit from the opportunity to care for the needs of a horse. Additionally, it is possible that, as seen with the relationship of future college plans, the students involved with in the horse program will become more academically motivated.

The concept of being responsible for the care of a horse, as well as the benefit of participating in horsemanship activities, has been shown to increase self-esteem with Florida 4-H youth as seen in a study with 122 adolescents, ages 12-18, who participated in a horsemanship summer school (Saunders-Ferguson, Culen, & TenBroeck, 2008). Additionally, it has been found that horse ownership for youth has benefits such as: developing self-confidence and self-esteem, developing responsibility, teaching commitment and goal setting, and enhancing leadership skills (American Junior Paint Horse Association, 2010).

Self-Efficacy

Self-efficacy is a concept that Albert Bandura (1997) first postulated as the personal conviction that one can successfully execute the behavior required to produce the outcomes desired (Rosen, Glennie, Dalton, Lennon, & Bozick, 2010). Bandura has suggested that self-efficacy can be developed in four ways: through mastery experiences, social modeling, social persuasion, and choice processes (Bandura, 2011).

Bandura (2011) suggests that mastery experiences involve facing challenges because, "if people experience only easy successes, they come to expect quick results and are easily discouraged by setbacks and failures" (p. 13). While working with horses, the adolescent will inevitably be challenged. It does not matter the amount of experience the individual has, working with horses is a communication with timing and feeling that requires extensive experience to develop. The mastery process, which can be made possible while working with horses, is important in the development of adolescents. Bandura stresses the importance of the struggles that lead to subject mastery contributing towards one's self-efficacy. Bandura (1997) stated,

> Successes build a robust belief in one's personal efficacy. Failures undermine it, especially if failures occur before a sense of efficacy is firmly established. If people experience only easy successes, they come to expect quick results and are easily discouraged by failure…Some difficulties and setback in human pursuits serve a beneficial purpose in teaching that success usually requires sustained effort. Difficulties provide opportunities to learn how to turn failure into success by honing one's capabilities to exercise better control over events. (p. 80).

Social modeling will aid the individual as "seeing people similar to oneself succeed by perseverant effort raises observers' aspirations and beliefs in their own capabilities" (Bandura, 2011, p. 13). While in the horse program, social modeling will regularly take place as students will be working together and aiding each other to progress their horsemanship. Social persuasion aids individuals as when "people are persuaded to believe in themselves they are more perseverant in the face of difficulties" (Bandura, 2011, p. 13). A horse program, like the one offered at the Thacher School, is an ideal situation for positive social persuasion. Given that working with horses is a challenging experience, having the benefit of a group of peers to work with and

encourage each other to succeed will likely aid in fostering growth and development of the individual's skills. Choice process can aid the individual as, "their choices of activities and environments, people set the course of their life paths and what they become" (Bandura, 2011, p. 13). This too will be aided in a horse program because as an individual's self-efficacy is increased, they will be more likely to persist when challenged and make choices that will lead to more success.

While working with horses, the youth will inevitably face obstacles that can provide many opportunities to build resilience. There are many different definitions in literature of what resilience is, but there is the general consensus that: "at a basic level, the ability to bounce back, recover, or successfully adapt in the face of obstacles and adversity is the common theme" (Este, Sitter, & Maclaurin, 2009, p. 202). By working with horses, students will face challenges that will force them to adapt, and in doing so progress towards a mastery process and potentially increase their self-efficacy. This aligns with Bandura's (2011) emphasis that resilient self-efficacy is necessary because "resilient self-efficacy requires experience in overcoming obstacles through perseverant effort…by learning how to manage failure so that it is informative rather than demoralizing" (p. 13). While working with horses, the individual is likely to be challenged, and by overcoming the challenges that the individual faces, the development of resilient self-efficacy is possible. Additionally, by increasing resilient self-efficacy, it is possible that the individual will be more likely to demonstrate this resilience in other areas such as academics and social skills.

In addition to providing mastery experiences, working with horses can help adolescents develop self-efficacy through social modeling and social persuasion experiences. Furthermore, working with horses and working in this group atmosphere, students will be able to see how their choices affect the horses and also witness the successes and failures of their fellow classmates. Social modeling aids the learner because "seeing people similar to oneself succeed by perseverant effort raises observers' aspirations and beliefs in their own capabilities" (Bandura, 2011, p. 13). In fact, Bandura (1997) emphasizes that this observational learning takes place both deliberately and inadvertently. Further, Bandura (1997) stresses that, "mastery modeling is being widely applied with good results to develop intellectual, social, and behavioral consequences. It is one of the most effective modes of human enablement" (p. 440). This process can aid in persuading the individual to believe that similar success is possible and aid in the development of resolve. While working in the horse program, students will have the opportunity to witness the successes and failures of their fellow classmates. By observing the effort that is made to overcome challenging experiences, and the choices made that result in success, the individual has the opportunity to model this behavior. This modeling could potentially transfer itself to the academic realm as these students will be in similar academic experiences. Further, by developing mastery, utilizing social modeling, and being persuaded by positive social interactions, the individual is likely to make better choices. As self-efficacy increases, the individual is more likely to make the choice to persevere when obstacles and challenging situations occur. In the horse program, the students will have the benefit of observing the rewards of effort, and

experience the benefits of their effort with their improved communication with horses. Through these experiences, students will be able to increase their self-efficacy as they will have the opportunity to succeed by making the choice to persevere when hard work is required.

Self-Regulation

Schunk (2012) defines self-regulation as, "an active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation, and behavior, guided and constrained by their goals and the contextual features in the environment" (p. 173). Originally self-regulation's focus was clinical in nature. The focus was looking at dysfunctional behaviors like aggression, conflicts, and behavioral problems (Schunk, 2012). Currently, the focus has shifted to also look at the role self-regulation plays in academic learning and achievement. From a behavioral standpoint, self-regulation is impacted by self-monitoring, self-instruction, and self-reinforcement. Schunk (2012) defines self-monitoring as "deliberate attention to some aspect of one's behavior and often is accompanied by recording its frequency or intensity" (p. 401). In a study of students who struggle with attention deficit and hyperactivity, self-monitoring on achievement outcomes aids increased time on task (Reid, Trout, & Schwartz, 2005). The study found that self-monitoring aided students by promoting on-task behavior which aided in academic performance and reduced disruptive behavior (Schunk, 2012). Self-instruction refers to "establishing discriminative stimuli that set the occasion for self-regulatory

responses leading to reinforcement" (Schunk, 2012, p. 404). Schunk (2012) emphasizes that encouraging students to use verbalizing statements can aid the individual in staying on task. Likewise, Schunk (2012) defines self-reinforcement as "the process whereby individuals reinforce themselves contingent on their performing a desired response, which increases the likelihood of future responding" (p. 405).

Much of the current focus on self-regulation uses the lens of social cognitive theory (Bandura, 2012). Here the focus examines the degree to which an individual uses cognitive skills to employ self-regulation. In this theory, social interactions are critical,

> Self-regulation also depends on learners being aware of socially approved behaviors…The meaning of actions depends on both the context and tools (language, signs, and symbols) used to describe the actions, through interaction with adults…children make the transition for behaviors regulated by others to behaviors regulated by themselves (self-regulated). (Schunk, 2012, p. 428).

This appears to be particularly relevant to the context of the current study; while working with other students in a horse program, the horse, as shown with past research on therapeutic riding and self-efficacy, can act as a catalyst to aid in the development of self-regulation (Greenwald, 2000).

Social cognitive theorists emphasize the importance of several processes for achieving self-regulation. These include: setting standards and goals, self-observation, self-evaluation, self-reaction, and self-reflection (Ormrod, 2012, p. 132). As individuals mature, developing positive goals and standards are necessary for their growth. Likewise, these goals and standards are more likely to develop in accordance to the standards and goals of peers and mentors. The group setting of a horse program is ideal for this. Caring and working with horses will require significant effort on the part of the

students participating in the program as well as the instructors who are responsible for not only teaching the students, but who are also tasked with ensuring the care of a school herd of horses. As the student progresses in the horse program, the goals and standards of the individual are likely to progress to a more advanced degree. Even if the student is not interested in continuing their equine education, and their goals for being involved in a horse program are minimal, the standards set forth by their instructors, and adopted by their peers, will be valuable for the overall development of the student. Further, it is possible that the positive standards set forth in the horse program could transfer to the academic realm. This transfer has been found by Pintrich (2003) where students who exhibited greater self-regulation skills were more academically motivated and were better learners (Schunk, 2005, p. 174).

As students develop their standards and goals, self-observation serves as a catalyst towards the development of self-regulation. Self-observation is important as it allows the individual the opportunity to determine what they are doing well and what they need more work with (Ormrod, p. 132). Because the horse does not lie, it serves as a great tool for this process, as it allows the individual clear and concise observations. This can allow the process of self-evaluation and allows the individual to begin the process of evaluating his or her own body of work. Regularly, students are evaluated by their peers and teachers. The value the horse program brings is in better promoting the development of an individual's self-evaluation.

Transitioning to evaluating one's own behavior is important in the development of self-regulation. Likewise, this allows the process of self-reaction where the individual

will not only praise oneself for positive outcomes, but also criticize their own behaviors (Ormrod, p. 132). Additionally, as the individual progresses with the development of self-regulation, the process of self-reflection is key to this development as it allows the individual to examine their behaviors, successes, and failures, and it allows the opportunity to make the necessary changes deemed necessary to achieve the goals and standards desired (Ormrod, p 132).

Current cognitive research has focused on the effects of the mastery process in relation to self-regulation. Paris, Byrnes, and Paris (2001) emphasize that research shows that "mastery goals are linked to positive, adaptive patterns of attributions where students are more likely to make effort attributions for both success and failure" (p.255). This is seen with attributional feedback in the enhancement of self-regulated learning. Informing students that they can achieve better results by working harder has been shown to motivate individuals to do so. Likewise, receiving feedback regarding effort for past successes has been shown to support students' perceptions of their progress and in doing so could aid in sustaining their motivation and increase their efficacy for further learning (Schunk, 2012). Thus, students who engage in a horse program will be forced to apply themselves where success is earned. With the honest nature of a horse, the student receives immediate feedback, and by participating in the program as an entire class, this can serve as a unifying experience.

Academic Motivation

Schunk, Pintrich, and Meece (2008) define motivation as "the process whereby goal-directed activity is instigated and sustained" (p. 4). In order to aid in the development of academic success, achievement motivation plays a large role in the development of a student. Grabe and Latta (1981) postulated "that students high in achievement motivation will be more persistent, make fewer persistence errors, and have higher cumulative achievement than students low in achievement motivation" (p. 8). Additionally, the relationship between social interactions and academic motivation has been explored where research has shown that social interaction can improve achievement in reading and other areas (Wigfield, Eccles, & Rodriguez, 1998). This is seen with interactions with peers and teachers having a vital role in the development of motivation.

Duda and Nicholls (1992) found a parallel goal orientation in students between sport and academic domains (Wigfield et al., 1998). Groff and Kleiber (2001), who were researching athletic ability and perceived competence, postulated that developing a positive identity will transcend domains. For example, "if an individual pursues kayaking and through that experience realizes that she is an independent person, she may generalize the view of herself as an independent person to other domains (e.g., school and home)" (Hayden, 2005, p. 37). This suggests the potential for motivation to succeed with horses being translated to the academic realm. By succeeding in reaching goals, the individual will be more likely to set more challenging goals for themselves. It is possible that this could be seen with the individuals' success with horses, and with success they enjoy in the classroom. Cognitive theories presume that people are innately motivated to

learn and adapt and are likely to be motivated to attain success (Schunk et al., 2008). This motivation to succeed could be seen academically, socially, or in the case of Thacher School, with horses. Battle (1965) defined attainment as "the importance to the individual of achievement in a given task…[that] should determine the length of his persistence in working at it" (Schunk et al., 2008, 61).

The expectation to succeed is a focus of cognitive theories on motivation. This is seen with research on expectancy values. Expectancy-value research can be broken down into two main generalizations:

> First, students with positive self-perceptions of their competence and positive expectancies of success are more likely to perform better, learn more, and engage in an adaptive manner on academic tasks by exerting more effort, persisting longer, and demonstrating more cognitive engagement. Second, students who value and are interested in academic tasks are more likely to choose similar tasks in the future, as well as perform better, learn more, and more adaptively engaged in tasks. (Schunk et al., 2008, p. 66).

Generally, it is held that it is best if individuals have a somewhat optimistic perception of their competence and efficacy rather than being overly optimistic or pessimistic towards their abilities as this plays a large role towards motivation and achievement (Schunk et al., 2008). By working in a horse program, individuals can enjoy visible improvement based upon their effort, and it is possible that this can create a greater desire to succeed. This learned persistence has the potential of being transferred to the academic realm, and while working in the horse program positive self-perceptions of competence can be nurtured.

Social cognitive theory looks at motivation as a process that influences learning and performance. A focal point is that individuals have the ability to learn by observing models and seeing skills and strategies that will aid them as well. Enactive learning "is learning by doing and experiencing the consequences of one's actions. Successful actions are retained; those that lead to failure are discarded" (Schunk et al., 2008, p.128). Likewise, vicarious learning "occurs in the absence of overt performance by learners and derives from observing live models (in person), human or nonhuman symbolic models (e.g. persons or cartoon character on television), or print models (e.g., schematics or written instructions on how to assemble products)" (Schunk et al., 2008, p. 128). This theory of learning is applicable to working with horses. This is particularly the case because working with horses is a hands-on process, and with the opportunity to watch classmates participate and learn from their successes or failures. The nature of a horse program, like the program at Thacher, will encourage this as students will work closely in developing their horsemanship skills. Festinger (1954) stressed the importance of the social role of motivation "to the extent that objective, nonsocial means are not available, people evaluate their opinions and abilities by comparison respectively with the opinions and abilities of others" (Schunk et al., 2008, p.151). Working in the horse program, students have the opportunity to form social comparisons which can then be transferred to an academic setting.

Effect on Academic Achievement

Schunk (1994), "emphasized the interactive and synergistic relations among goal setting, self-evaluation, and self-efficacy" (Wigfield et al., 82). There is the potential for the cognitive improvements enjoyed by working with horses transferring to an academic setting. In the scope of social cognitive theory, previous research has focused on the ideas that:

> Students who are motivated are likely to put forth greater effort; those who are confident are likely to persist; those who are less anxious are likely to be less distracted; those who practice effective cognitive and metacognitive strategies are likely to learn to recall effectively; those who believe they can change their intelligence develop a belief that they have the skill needed to perform; and those who manage their resources strategically are likely to be more efficient; together all of these qualities are likely to lead to higher academic achievement (Komarraju & Nadler, 2013, p. 68).

Zimmerman, Bandura, and Martinez-Pons (1992, p. 665) suggest that "students' perceived self-regulatory efficacy would influence their perceived self-efficacy for academic achievement, and their efficacy should, in turn, influence their personal goals and grade achievement." They found that not only did self-efficacy influence academic goals for themselves, but they also found that this increased their academic achievement (Zimmerman et al., 1992). From this, it can be speculated that the development of a student's cognitive learning strategies derived from the challenges presented by a horse program may be related to developing self-efficacy for academic achievement and potentially aid in improving academic achievement. Performance feedback is an important benefit of working with horses. The horse serves as the teacher and in this role can give feedback that will not only aid in learning, but also in increasing self-efficacy

because the riders' actions are their own. This is stressed by Schunk, Pintrich, and Meece (2008),

> Motivation and self-efficacy are enhanced when people perceive they are performing skillfully or becoming more competent. Lack of success or slow progress will not necessarily lower self-efficacy and motivation if students believe they can perform better by adjusting their approach (e.g., expend more effort, use effective task strategies). (p. 147).

Likewise, seeing a peer succeed, or utilize more effort or task strategies, can aid an individual through vicarious learning. By observing students use effective task strategies while working with horses, it can be postulated that these same students will be more likely to recognize these same strategies being used academically.

Additionally, with the evidence from previous research, such as Smith et al., (2006), showing that increased horsemanship knowledge can result in an increase in life skills development, the program at Thacher appears to have the potential for a positive impact on the students participating. This is seen with the development of positive changes such as self-motivation, responsibility, confidence, and self-esteem (Iannone, 2003). With these positive changes, it is possible that an increase in self-efficacy, self-regulation, and academic motivation may result in more disciplined, focused students.

Further, with the documented physical, cognitive, and social benefits of working with horses, individualized instruction will greatly aid in developing a person's horsemanship, and aid in the development of the cognitive skills that will aid them in being successful students. While working with horses, communication is the key. A new language must be learned and mastered to better work with a horse. Because of this, the students involved in the horse program have the benefit of receiving individualized

guidance in working with a horse. Likewise, for those who are experienced with working with horses, and might come from differing backgrounds, benefits can be derived from practicing different techniques for communicating with their horses.

CHAPTER 3

METHODOLOGY

This study focuses on the perception of participation in a horse program for boarding school students and the cognitive functions of: self-efficacy, self-regulation, and academic motivation. Likewise, this study examines the perception held by students with previous equine experience and the development of self-efficacy, self-regulation, and academic motivation. The purpose of this study is to examine the perception of boarding school students who are involved in a horse program and how their involvement impacts their ability to succeed academically. Additionally, this study investigates whether previous equine experience has a relationship with boarding school students' perception of their ability to succeed academically. This study is guided by the research questions: how do students perceive program involvement to influence their self-efficacy, self-regulation, and academic motivation? Do students with more extensive previous experience working with horses report increased levels of self-efficacy, self-regulation, or academic motivation?

Research Design

This study compares students' perception of self-efficacy, self-regulation, and academic motivation by experience with horses at the beginning of their freshman semester at The Thacher School and the students' self-efficacy, self-regulation, and academic motivation at the beginning of the second semester. These perceptions were

measured by questionnaires focused on self-efficacy, self-regulation, and academic motivation that take place during the first weeks of involvement in the horse program at Thacher and at the start of the second semester. Additionally, this study used a mixed methods design, utilizing a qualitative question to better ascertain the relationship of the horse program and its relationship with students' school success.

Participants

67 incoming freshman at The Thacher School were the population selected for this study. All students were required to participate in the horse program. They arrived at Thacher a week before classes begin and are immediately assigned a horse and begin their training with horses (Cassutt, n.d.). These students continue working with their horses, and doing chores every day, with a culminating gymkhana taking place at the end of their freshman year. Ideally, all of the students would have participated; however, only 44 students completed the initial survey sections on self-efficacy for self-regulated learning and self-efficacy for academic achievement. Further, only 37 students completed the academic motivation survey. Likewise, on the follow up survey, only 44 students completed the survey section on self-efficacy for self-regulated learning and self-efficacy for academic achievement, the academic motivation survey, and responded to the qualitative question.

Instruments

The focus of the study was to examine student perceptions of working with horses and participating in a horse program during their first semester in boarding school. To

ascertain the perceptions of the horse program on the students' self-efficacy and self-regulated learning, two subscales from the *Children's Multidimensional Self-Efficacy Scales* were utilized: *self-efficacy for self-regulated learning* and *self-efficacy for academic achievement* (Zimmerman et al., 1992, p. 668). The items for both sets of self-efficacy scales are listed in Appendix 1. The high school version of the *Academic Motivation Scale* was used to determine the effect of the horse program on the students' academic motivation (Vallerand, Pelletier, Blais, & Briere, 1992-1993). The items for the academic motivation scale are listed in Appendix 2. These questionnaires were administered at the beginning of the semester, within the first two weeks of working with horses, and were retaken during the first weeks of the second academic semester.

The self-efficacy and self-regulation subscales were a Likert design and rated on a seven point scale: *not well at all* for a rating of 1, *not too well* for a rating of 3, *pretty well* for a rating of 5, and *very well* for a rating of 7 (Zimmerman et al., 1992, p.667). It was expected that the subscales should take no more than 10 minutes to complete. Likewise, it was expected that the academic motivation questionnaire should take no more than 10 minutes to complete and was rated on a seven point scale: *does not correspond at all* for a rating of 1, *corresponds a little* for ratings of 2 and 3, *corresponds moderately* for a rating of 4, *corresponds a lot* for ratings of 5 and 6, and *corresponds exactly* for a rating of 7 (Vallerand et al., 1992-1993).

The *Children's Multidimensional Self-Efficacy Scales* are designed for a high school population (Rosen et al., 2010). The *self-efficacy for self-regulated learning* subscale is 11 items in length and has shown an internal consistency reliability alpha of

.87 (Zimmerman et al., 1992). Likewise, the *self-efficacy for academic achievement* subscale consists of nine items and has shown an internal consistency reliability alpha of .70 (Zimmerman et al., 1992). These items were originally developed by Zimmerman and Martinez Pons (1992, p. 665) to measure learning strategies of high school students during structured interviews. Because the initial design of these scales was from an unpublished source, it is unknown if factor analysis was used to determine if the items of the scales measured the one construct intended. Therefore, the internal consistency alpha had to be utilized in a holistic nature.

The *Academic Motivation Scale*, created by Vallerand et al., (1989), has been adapted to a high school version by the original author. The original version was designed for a college population. This subscale consists of subscales that focus on intrinsic motivation, extrinsic motivation, and amotivation (Vallerand et al., 1989). The internal consistency of the subscales was tested by Vallerand, Pelletier, Blais, Briere, Senecal, & Vallieres (1992) and found Cronbach alphas of .83 to .86, though the identification subscale had an alpha of .62. These were similar to the original version of the scale used where alpha values ranged from .76 to .86, and the identification subscale had a value of .62 (Vallerand et al., 1992). This scale consists of seven subscales made of four items each and assesses three types of intrinsic motivation, three types of extrinsic motivation, and amotivation (Vallerand et al., 1992. p. 1008). Additionally, validation studies were utilized, involving over 3,000 students, to insure internal consistency and stability (Vallerand et al., 1992. p. 1008). Further, factor analysis confirmed the seven subscales measured the constructs intended (Vallerand et al., 1992. p. 1008).

The *Academic Motivation Scale*, consisting of 28 questions, is mostly worded in a positive form. However, four (questions five, 12, 19, and 26) of the questions have negative worded sentences. There was no information available indicating if Vallerand et al., intended to have these items reversed for scale scoring. Therefore, speculation was required, and these items were transformed on SPSS to have a reversed scoring.

In addition to the scales used above, a qualitative question was asked on the second, post questionnaire. This single question ascertained how the individual students perceived the horse program to impact them as students. The rationale for including this question was to gain student perspectives of the effect of the being involved in the horse program. It was expected that this question, and the question determining previous experience would take no more than five minutes to complete. The qualitative question was placed at the beginning of the survey so as to elicit a greater response rate.

Demographic information including previous experience working with horses was recorded to allow for further exploration into the cognitive effects of horses on academic achievement motivation, self-regulation, and self-efficacy. These students were asked to describe their previous experience with working with horses prior to coming to Thacher. In order to secure more validity, Dave Leithead, a National Reining Horse Association (NRHA) professional trainer was recruited to determine the experience levels of the students. As a professional trainer, Dave served as an expert to judge to evaluate levels of experience with a boarding school population. Dave read each response, and based on his expert judgment and analysis of equine knowledge he ascertained each individual's level of previous equine experience. Based on this expert judgment, students were placed

into three groups: students with limited to no experience, students with moderate experience, and students with extensive equine experience. This information was used to help control for previous experience, and was used to gain further insight into the relationship of horsemanship experience and cognitive skills.

Procedure

Parental consent was required because of the age (high school freshman) of that students involved as the sample population. This document was sent by email to The Thacher School administration, and they delivered this to the parents. Likewise, the SurveyMonkey survey link was emailed to the school administration and they in return delivered the survey to the students. It is unknown if any of the students did not complete the survey because of parental refusal. Email of the SurveyMonkey link was completed for each of the two surveying periods.

SurveyMonkey was used to administer the survey to the freshman class. This was completed during their first weeks of being enrolled at Thacher and being involved in the horse program. The survey was originally intended to be open for students to respond over a one week period, but students were given more time to allow for a better return rate.

SurveyMonkey was used to administer the follow up survey to the freshman class. Originally the follow up survey was planned to be given at the end of the first semester; however, this was pushed back to the beginning of the second semester to better accommodate the students' busy end of the first semester schedule. The follow up survey

was originally intended to be open for students to respond over a one week period, but students were given more time to allow for increased return rate.

Data Analysis

The quantitative data were analyzed to answer the research questions: 1) how do students perceive program involvement to influence their self-efficacy, self-regulation, and academic motivation? 2) Do students with more extensive previous experience working with horses report increased levels of self-efficacy, self-regulation, or academic motivation? Responses to the open-ended qualitative question were analyzed to further explore students' perception of the horse program on their student success: how has being involved in the horse program affected your potential to be successful in school?

Data was collected through SurveyMonkey and was exported and analyzed using SPSS. The participants were divided into three groups based on previous experience: 1. Students with little to no experience, 2. Students with moderate experience, and 3. Students with extensive experience. Individual sums were generated from each of the three Likert scale utilized. Total scores for each sub-scale were selected as a way of controlling for students electing to skip questions, or sections, and these missing values were coded in SPSS based off of the average group responses. Total scores for each experience group were derived and these were utilized in the statistical analysis. Three separate Analysis of Variances (ANOVA) were used to determine if there was a significant differences in the mean scores for self-efficacy for self-regulated learning, self-efficacy for academic achievement, and academic motivation between students with

differing experience levels related to working with horse at the beginning of the semester. Likewise, three separate Analysis of Variances (ANOVA) were used to determine if there was a significant differences in self-efficacy for self-regulated learning, self-efficacy for academic achievement, and academic motivation between students with differing experience levels related to working with horse at the start of the second semester. While statistical inference cannot be made on the on the development of cognitive functioning throughout the semester, this data, in conjunction with the qualitative question, will allow some examination into the relationship of previous experience working with horses and experience in a boarding school horse program.

Responses to the open-ended question were collected through SurveyMonkey and transcribed to a database. These responses were assigned codes using the conceptual framework of social cognitive theory. These working codes were organized by the overarching themes of the cognitive function of self-efficacy, self-regulation, and academic achievement. The themes, and their relation to the working codes, were verified by a colleague with no relation to the study. Further, to verify the accuracy of the codes and themes, a colleague unrelated to the study, analyzed the responses and identified each response relating to the previously established codes and themes. This process was conducted to ensure reliability during to coding process.

Ethical Considerations

The nature of this survey was designed for minimal risk of the participating students, and the questions were non-offensive and non-controversial in nature.

Approval was gained from the Montana State University Institutional Review Board prior to conducting the research. The survey was conducted online using SurveyMonkey, and by using this software personal information was able to be secured. Additionally, all contact with students and parents of the students was conducted by the school faculty and administration.

Summary

The study examined the relationship of previous equine experience and the development of self-efficacy, self-regulation, and academic motivation. Additionally, the study examined the perception of being involved in a boarding school horse program and the cognitive outcomes: self-efficacy, self-regulation, and academic motivation. The survey was administered electronically, utilizing SurveyMonkey, and the results were analyzed using descriptive statistics for the quantitative data and coding and theming for the qualitative question.

CHAPTER 4

RESULTS

First Semester Data

Overall analyses of the first semester data revealed that the group variances were all non-significant and the distributions were all normal. The data met the requirements for normalcy and homogeneity.

Self-Efficacy for Self-Regulated Learning

The *self-efficacy for self-regulated learning* subscale yielded a reliability alpha of .62 and consisted of a possible range of 11 to 77. The "little to no experience" group had a range of 27 with a minimum score of 44 and maximum score of 71. The "moderate experience" group had a range of 18 with minimum and maximum sum scores of 49 and 67. The "extensive experience group had a range of 8.81 with minimum and maximum sum scores of 55.19 and 64. The means and standard deviations for the three levels of experience groups, are reported in Table 1.

Table 1.
Descriptive Statistics for Self-Regulated Learning Mean Scores by Group

Previous Experience	*N*	*M*	*SD*
Little to no Experience	33	60.05	5.31
Moderate Experience	7	57.80	5.82
Extensive Experience	4	61.05	3.99

A one-way analysis of variance (ANOVA) was conducted to determine if groups with differing levels of previous experience working with horses had significantly different mean scores on self-regulated learning. The independent variable, previous experience working with horses, was broken down into three groups: those with little to no experience, moderate experience, and those with extensive equine experience. The dependent variable was the mean self-efficacy for self-regulated learning score of each group. These scores were recorded during the beginning weeks of the school semester. The ANOVA was not significant, $F_{(2, 41)} = 0.64$, $p = .53$, indicating there was no significant difference in the mean self-regulated learning scores between the three groups. The strength of the relationship between previous experience with working with horses and self-regulated learning mean scores as assessed by η^2 (Eta squared) was small, with the experience with horses' factor accounting for 3 percent of the variance among groups on the dependent variable.

Self-Efficacy for Academic Achievement

The *self-efficacy for academic achievement* yielded a reliability alpha of .77 and consisted of a possible range of nine to 63. The "little to no experience" group had a range of 21 with a minimum score of 42 and maximum score of 63. The "moderate experience" group had a range of 14.17 with minimum and maximum sum scores of 41 and 55.18. The "extensive experience group had a range of 11 with minimum and maximum sum scores of 41 and 52.

The means and standard deviations for the three levels of experience groups are reported in Table 2.

Table 2.
Descriptive Statistics for Self-Efficacy for Academic Achievement Mean Scores by Group

Previous Experience	*N*	*M*	*SD*
Little to no Experience	33	51.98	6.02
Moderate Experience	7	48.34	4.63
Extensive Experience	4	47.25	5.19

A one-way analysis of variance (ANOVA) was conducted to determine if groups with differing levels of previous experience working with horses had significantly different mean scores on academic achievement. The independent variable, previous experience working with horses, was broken down into three groups: those with little to no experience, moderate experience, and those with extensive equine experience. The dependent variable was the mean self-efficacy for academic achievement score of each group. These scores were recorded during the beginning weeks of the school semester. The ANOVA was not significant, $F_{(2, 41)} = 2.05$, $p = .141$, indicating that there was no significant difference in the mean self-efficacy for academic achievement scores between the three groups. The strength of the relationship between previous experience with working with horses and self-efficacy for academic achievement mean scores as assessed by η^2 (Eta squared) was moderate, with the experience with horses factor accounting for 9 percent of the variance among groups on the dependent variable.

Academic Motivation Scale

The *Academic Motivation Scale* yielded a reliability alpha of .92 and consisted of a possible range of 28 to 196. The "little to no experience" group had a range of 116 with a minimum score of 52 and maximum score of 168. The "moderate experience" group

had a range of 69 with minimum and maximum sum scores of 77 and 146. The "extensive experience" group had a range of 27.54 with minimum and maximum sum scores of 136.64 and 164.18.

A one-way analysis of variance (ANOVA) was conducted to determine if groups with differing levels of experience working with horses reported significantly different mean scores on academic motivation. The independent variable, previous experience working with horses, was broken down into three groups: those with little to no experience, moderate experience, and those with extensive equine experience. The dependent variable was the mean academic motivation score of each group. These scores were recorded during the beginning weeks of the school semester. The ANOVA was not significant, $F_{(2, 41)} = 3.14$, $p = .054$, indicating that previous experience with working with horses did not result in a significant relationship with academic motivation scores. The strength of the relationship between previous experience with working with horses and academic motivation scores as assessed by η^2 (Eta squared) was moderate, with experience the with horses factor accounting for 13.3 percent of the variance among groups on the dependent variable. The results of these tests, as well as the means and standard deviations for the three levels of experience groups, are reported in Table 3.

Table 3.
Descriptive Statistics for Academic Motivation Mean Scores by Group

Previous Experience	*N*	*M*	*SD*
Little to no Experience	33	139.06	21.93
Moderate Experience	7	118.76	23.84
Extensive Experience	4	147.95	12.16

Second Semester Data

Overall analyses of the second semester data revealed that the group variances were all non-significant and the distributions were all normal. The data met the requirements for normalcy and homogeneity.

Self-Efficacy for Self-Regulated Learning

The *self-efficacy for self-regulated learning* subscale yielded a reliability alpha of .73 and consisted of a possible range of 11 to 77. The "little to no experience" group had a range of 29 with a minimum score of 44 and maximum score of 73. The "moderate experience" group had a range of 20 with minimum and maximum sum scores of 51 and 71. The "extensive experience group had a range of 2.45 with minimum and maximum sum scores of 58.55 and 61.

A one-way analysis of variance (ANOVA) was conducted to determine if groups with differing levels of previous experience working with horses reported significantly different mean scores on self-regulated learning during the second semester. The independent variable, previous experience working with horses, was broken down into three groups: those with little to no experience, moderate experience, and those with extensive equine experience. The dependent variable was the mean self-efficacy for self-regulated learning mean score of each group. These scores were recorded during the beginning weeks of the second semester. The ANOVA was not significant, $F_{(2, 41)} = 0.58$, $p = .57$, indicating there was no significant difference in the mean self-regulated learning scores between the three groups. The strength of the relationship between previous experience with working with horses and self-regulated learning mean scores as

assessed by η^2 (Eta squared) was small, with the experience with horses' factor accounting for 3 percent of the variance among groups on the dependent variable. The results of these tests, as well as the means and standard deviations for the three levels of experience groups, are reported in Table 4.

Table 4.
Descriptive Statistics for Self-Regulated Learning Mean Scores by Group

Previous Experience	*N*	*M*	*SD*
Little to no Experience	33	57.93	6.68
Moderate Experience	9	60.56	7.28
Extensive Experience	2	59.77	1.73

Self-Efficacy for Academic Achievement

The *self-efficacy for academic achievement* yielded a reliability alpha of .62 and consisted of a possible range of nine to 63. The "little to no experience" group had a range of 22 with a minimum score of 41 and maximum score of 63. The "moderate experience" group had a range of 9.62 with minimum and maximum sum scores of 49 and 58.62. The "extensive experience group had a range of 12.12 with minimum and maximum sum scores of 50.88 and 63.

A one-way analysis of variance (ANOVA) was conducted to determine if groups with differing levels of previous experience working with horses had significantly different mean scores on academic achievement. The independent variable, previous experience working with horses, was broken down into three groups: those with little to no experience, moderate experience, and those with extensive equine experience. The dependent variable was the mean self-efficacy for academic achievement scores of each

group. These scores were recorded during the beginning weeks of the second semester. The ANOVA was significant, $F_{(2, 41)} = 3.36$, $p = .045$, indicating that there was a significant difference in in the mean scores on academic achievement between the groups. The strength of the relationship between previous experience with working with horses and self-efficacy for academic achievement mean scores as assessed by η^2 (Eta squared) was high, with experience with horses' factor accounting for 14 percent of the variance among groups on the dependent variable. However, the power for the ANOVA test was found to be .60 indicating that the probability of making a Type II error to be 40 percent.

Thus, the Tukey HSD post hoc test procedure was conducted to control for Type I error rates when making pairwise comparisons among the three group means. The results of this test found no significant results between each of the three group means. The results of these tests, as well as the means and standard deviations for the three levels of experience groups, are reported in Table 5.

Table 5.
Descriptive Statistics for Self-Efficacy for Academic Achievement Mean Scores by Group

Previous Experience	*N*	*M*	*SD*
Little to no Experience	33	49.87	5.01
Moderate Experience	9	53.25	3.25
Extensive Experience	2	56.94	8.57

Academic Motivation Scale

The *Academic Motivation Scale* yielded a reliability alpha of .95 and consisted of a possible range of 28 to 196. The "little to no experience" group had a range of 102.38

with a minimum score of 70.62 and maximum score of 173. The "moderate experience" group had a range of 78 with minimum and maximum sum scores of 81 and 159. The "extensive experience group had a range of 22.58 with minimum and maximum sum scores of 137.42 and 160.

A one-way analysis of variance (ANOVA) was conducted to determine if groups with differing levels of experience working with horses reported significantly different mean scores on academic motivation. The independent variable, previous experience working with horses, was broken down into three groups: those with little to no experience, moderate experience, and those with extensive equine experience. The dependent variable was the mean academic motivation scores of each group. These scores were recorded during the beginning weeks of the second semester. The ANOVA was not significant, $F_{(2, 41)} = .262$, $p = .77$, indicating that previous experience with working with horses did not result in a significant relationship with academic motivation scores. The strength of the relationship between previous experience with working with horses and academic motivation scores as assessed by η^2 (Eta squared) was low, with experience with horses' factor accounting for 1.3 percent of the variance among groups on the dependent variable. The results of these tests, as well as the means and standard deviations for the three levels of experience groups, are reported in Table 6.

Table 6.
Descriptive Statistics for Academic Motivation Mean Scores by Group

Previous Experience	*N*	*M*	*SD*
Little to no Experience	33	137.15	21.86
Moderate Experience	9	135.91	27.84
Extensive Experience	2	148.71	15.96

Qualitative Results

The findings regarding student perceptions of how involvement in the horse program at The Thacher School has affected their potential to be successful in school were organized into major and minor themes. Data codes were organized into themes aligned the overarching themes present in social cognitive theory of self-efficacy, self-regulation, and motivation. Furthermore, the researcher employed knowledge from personal experience working in the horse training industry and teaching adolescents riding techniques, to help organize the codes into meaningful themes. Personal experience and understanding of the value derived from working with horses in a horse program was necessary to fully decipher the responses and their relation to the themes of self-efficacy, self-regulation, and academic motivation.

The codes and themes, as well as their relation to the themes of cognitive functions, were confirmed by a colleague unrelated to the study. Additionally, to verify the accuracy of the codes, a colleague unrelated to the study analyzed the responses and identified each response relating to the established codes and themes. This was conducted to ensure reliability during to coding process. As the qualitative question was singular, and simple in nature, there were no disagreements in the coding process.

Further, with a focus towards previous equine experience, there were no specific group related themes found throughout the coding process.

Positive Perception with Ability to Achieve

The most common perception of students (68%) was that being involved in the horse program had a positive relationship with their success as a student. With the cognitive functions as concepts for this study, responses were grouped into each function relating to the themes of self-regulation, self-efficacy, and motivation. The most common responses best related to the function of self-regulation. In fact, 52% of the responses reflected this cognitive outcome with an even split of responses reflecting an increase in organization/time management and responsibility. "It has given me a sense of time management and has also showed me that no matter how pointless a task seems, and no matter how many times I have to do it, that not only can I do it, but I can support another living thing." Likewise, another student exemplified the responsibility created by working in a horse program seen through group persuasion:

> Having my own horse and being included in the horse program has pushed me into being more mature. Since the beginning the faculty give you so much trust that it would feel strange to do anything other than your very best and do everything to live up to their expectations.

Likewise, academic motivation, seen with responses related to work ethic and focus, related to 34% of the responses.

> I find it a very therapeutic, relaxing way to de-stress. When riding there is no room to worry about the day's triumphs and failures, you are focused only on being with your horse and this mentality of nowness has helped me be a happier, more patient, and more focused student and person.

With the concept of cognitive functions, self-efficacy, seen with responses related to persistence and patience, resulted in 11% of the responses.

> The horse program acts as a refresher for me. Any stress I have accumulated during the day disappears, and I could organize my thoughts better. Also, because an aspect of horseback riding is to take a complicated maneuver and break it down into simple parts, I find that during the academic day, I am able to tackle difficult problems in smaller, easier steps.

Negative Perception with Ability to Succeed

A major theme that occurred was that students (27%) viewed being involved in the horse program as having a negative relationship with their ability to be successful in school. The most common detriment associated with the program and the ability to succeed was seen with time taken away from other activities. One particular issue was the early morning chores that caused the students to be tired.

> I feel that sometimes the horse program takes up too much of my day and my time during the day, which doesn't allow for a full focus on my academics. Also waking up early to muck can be pretty hard to do, and it can leave me tired for the rest of the day.

Likewise, the commitment to the horse program on the weekends was considered by some to have a negative impact on their lives as students.

> I think the time commitment involved on the weekends with the Horse Department as well as the run over time after sports period inhibits our ability to become acclimated with Ojai and the School. This is because we are unable to play both sports and horses if we wish to have any down time on the weekends.

Overall, a positive theme emerged from the responses in that the students' perception of the horse program having a positive relationship with being a student. Additionally, 14% of the responses signified the bonding experience with the horse as an

important factor to their relationship of working in the horse program and being a student.

CHAPTER 5

DISCUSSION

Findings

The majority of previous research on the outcomes of therapeutic horse programs has focused on the realm of youth dealing with physical, psychological, and cognitive disabilities. Little has examined the relationship between being engaged in a horse program and academic achievement. The few studies conducted to date have focused on the development of life skills for 4-H youth as well as the benefits of a horse camp (Anderson & Karr-Lilienthal, 2011). These studies have shed light on the potential benefits derived from working in a horse program (Kaiser et al., 2004).

This current study serves as an exploratory study to examine the potential relationship between previous experience working with horses based on students' perception of self-efficacy for self-regulated learning, self-efficacy for academic achievement, and academic motivation. This is necessary to better determine the role previous horse experience has on these cognitive functions, and this can be used as a baseline/control to further explore the role a boarding school horse program can have developmentally. Additionally, it is important in a school setting to determine what aids a student to discover academic success. With the recent focus on school reform, attention is warranted to ascertain how to promote greater success in students. In this process, it is valuable to look beyond simply promoting content knowledge. Previous research has shown intelligence is the most valid predictor of success with an average correlation of *r*

= .50 (Steinmayr & Spinath, 2009, p. 81). However, more focus is needed in developing the individual student and the functions of self-efficacy, self-regulation, and academic motivation. While intelligence is a telling predictor of success, determining alternative ways to increase motivation, efficacy, and self-regulation is vital to aiding the development of a student and maximizing the potential of the student.

Likewise, this study serves as an exploratory study to examine how students perceive program involvement to influence their self-efficacy, self-regulation, and academic motivation. This is valuable in ascertaining how students value involvement in a horse program. Of note, 54 percent of the students' responses indicated a positive perception of the role of the horse program in promoting their self-regulation.

The current study offers illuminating insight into the student perception of being involved in a horse program and the ability to succeed academically. This positive influence is evident in 64 percent of the students recognizing a positive relationship of working in horse program and their ability to succeed academically. The findings, particularly seen from the qualitative question align with previous work with regards to the utilization of horses to promote self-efficacy and self-regulation. The work with 4-H youth is the most relevant to the current study as it deals with normal functioning youth, focuses on the use of horses outside of a therapeutic realm, and is quantitative in nature. Additionally, the current study aligns with previous research on the positive relationship of utilizing the outdoors and the promotion of academic achievement. Of note, the current study aligns with Athman and Monroe's (2004) study focused on the academic benefits of ninth and 12^{th} grade students participating in an environmentally based

education program and the promotion of achievement motivation. Further, participants' positive perception of the promotion of self-regulation, is aligned with previous research by Pintrich (2003) supporting the transfer of self-regulation skills to more academically motivated learners, value can be derived from utilizing a horse program with the promotion of academic achievement (Schunk, 2005).

The current study also aligns with previous work with regards to the utilization of horses to promote academic motivation (Anderson & Karr-Lilienthal, 2011). However, some further quantitative exploration is warranted on the current cognitive outcome. Due to the limited sample size, no significance, after Post Hoc tests, was found, but moderate to large effects were found showing a potential relationship between previous equine experience and the development of academic motivation and self-efficacy for academic achievement. It is possible that a larger sample could have provided greater power that would have resulted in a statistically significant relationship between the two variables. This potential relationship aligns with previous research. With the focus of the research with 4-H youth, Anderson & Karr-Lilienthal (2011) found that the development of horse skills had a positive relationship with future academic plans (p. 4).

Where the current research falls short, is seen with the lack of significant results with the quantitative surveys. Significant results were found for the second semester survey regarding self-efficacy for academic achievement, but the Tukey HSD Post Hoc test revealed no significant differences between groups. Additionally, had a more generous alpha of .10 been adopted, significant results would have been found for the first semester survey on the academic motivation scale. With a p=.054 and moderate to

large effect a potential relationship exists. Unfortunately, due to the small sample size, this was not a practical option. Simply, the limited sample size resulted in limited power seen throughout the quantitative data.

Relationship of Previous Experience

The results of the qualitative data revealed similar themes across all levels of previous equine experience. Furthermore, the quantitative data were all non-significant after post-hoc tests indicating no relation between previous equine experience and cognitive functioning. These results are counter to previous research; however, the limited sample size is a possible reason for these limited findings. The results of the self-efficacy for self-regulated learning scale showed no significance. In fact, the results for each semester of testing yielded low effect, and low power. Therefore, little inference can be made between equine experience and the development of self-efficacy for self-regulated learning across experience groups. Additionally, it is difficult to question if a larger sample size, and a potential resulting greater power could have yielded significant results.

The results of the self-efficacy for academic achievement scale showed significant results during the second semester survey, but failed to maintain significance in post-hoc test. More investigation into this potential relationship is warranted as a large effect was found.

The results of the academic motivation scale were not significant, had moderate to high effect, and low to moderate power. However, if a more generous alpha level of .10 been utilized the results would have been significant. Unfortunately, due to the low

power this was not ideal. Further investigation into the potential perception that a positive relationship exists between working in a horse program and academic motivation and self-efficacy for academic achievement is warranted. Because of the low sample size for this scale (44 of 67 students) there remains a question of potential relationships. More, with only two and four students classified as having extensive equine experience in each respective semester, it is possible that of the remaining 30 students, more experienced students could be available, which would aid with the issue of the low power.

Student Perception of Impact on School Success

This study aimed to gain insight into student perception of being involved in a horse program and the impact involvement had on academic success. The quantitative data found potential relationships of being involved in a horse program and self-efficacy for academic achievement and academic motivation. Unfortunately, due to the limited sample size, little inference can be drawn from the quantitative data; however, potential relationships have emerged. The qualitative data offered more insight as 64 percent of the students' perceived being involved the horse program having a positive relationship with their ability to succeed in school. Of particular interest, 52 percent of the students indicated being involved in the horse program aided them in organization, time management, and responsibility. All of these variables were linked to the code of self-regulation. This data showcases the student perception, unlike the quantitative data, that the greatest value of involvement in a horse program, and its impact on potential academic success, is seen with the promotion of self-regulation.

Previous research with 4-H adolescents has demonstrated the correlation between horsemanship knowledge and the development of life skills (Smith et al., 2006) and the relation of horsemanship knowledge and academic interest (Saunders-Ferguson et al., 2008). Thus, it is reasonable that value can be placed in the utilization of horse programs and the promotion of academic success. Research with Nebraska 4-H youth who participated in both riding and non-riding horsemanship activities found that a focus on a holistic approach to horsemanship can promote academic success and life skill development more than singular equine experiences (Saunders-Ferguson et al., 2008). Thus, the promotion of well-rounded horsemanship programs offer the richest opportunities for growth. The documented physical, cognitive, and social benefits of working with horses through individualized instruction will greatly aid in developing a person's horsemanship. Consequently, value should be emphasized in utilizing instructors with extensive equine knowledge as they will be able to give more individualized guidance in working with a horse. Additionally, as horses serve a vital role in the teaching process, having multiple options of horses for students, and more talented horses, will allow for students to further develop their horsemanship skills and promote the development of cognitive development.

Recommendations for Further Study

A logical continuation of this study would be to retest these students at the conclusion of the year of involvement in the horse program. Because of the limited sample size it is possible that including another class at Thacher and surveying students

still involved in the horse program as well as those that are no longer involved could shed more light on the impact of Thacher's program. More specifically, it would be valuable to follow these students throughout their time at Thacher.

Likewise, future studies should track individual students throughout the process to allow for a comparison of groups over the course of time involved in the program. This would allow for a deeper understanding of the impacts of being involved in a boarding school horse program, and would allow for a more detailed investigation of the effect of previous equine experience and the development of self-efficacy, self-regulation, and academic motivation.

Further, it would be valuable to look outside of Thacher to further delve into the value a horse program can have on the development of cognitive skills. The current study is limited in scope, and so this could better allow for greater insight into the potential benefits of a horse program. Because of the financial and time investment required by a horse program, this could provide valuable information to school programs.

Potential Limitations

The biggest limitation of the current study is the small sample size involved. This is particularly evident with the low power levels found on each sub-scale of the survey given. This is mainly due to the limited response rate. Additionally, the sample selected for this study is limited in its diversity. There were very few individuals with significant experience, and it is possible that the students involved came from similar, supportive backgrounds. Likewise, it is possible that the students sampled are motivated students,

despite being involved with horses, because of the prestigious nature of The Thacher School. Additionally, uncontrolled variables, such as the students self-identifying their previous experience pose a possible limitation to the current study. The current study attempted to address this issue by utilizing a professional trainer to categorize the students by experience levels. However, it is possible that some students did not adequately detail their previous experience, and some of the students may have provided limited information making it difficult to accurately categorize them.

Conclusions and Implications

Due to the low power of the survey data, it is difficult to draw significant conclusions from the current study. However, this study does provide insight into the potential benefit to increase academic motivation for students with extensive equine experience. Although no significant results were found, there is a practical significance to these results. With a moderate to large effect, in addition to the small sample size, these results reveal the need for further research to fully articulate the nature of the relationship between involvement in a horse program and the development of cognitive skills. Future research would be well-served to follow up with these students, and hopefully have a greater response rate. Had more students responded to this study, it is possible that there would have been adequate power to detect the existence of significant results. Further, this would be valuable to ascertain so as to better determine the value of implementing a horse program in a boarding school which has high financial and time costs.

Conclusion

Of the current research on the benefits of working with horses, little has examined the potential academic benefits. The results of this study suggest that there is a potential relationship between equine experience and academic motivation. Likewise, it would be valuable to look more into the relationship of previous experience and self-efficacy for academic achievement. Given the importance of supporting adolescents' academic success in our world today, it is important for schools to understand all the factors that can help to further develop their students.

REFERENCES CITED

Allen-Craig, S., & Hartley, C. (2012). Exploring the long-term effects for young women involved in an outdoor education program. *Journal of Outdoor Recreation, Education and Leadership*, *4*(2), 88-91.

Anderson, K. P., & Karr-Lilienthal, L., (2011). Influence of 4-H horse project involvement on development of life skills. *Journal of Extension,* 49 (5), 1-6.

Athman, J. A. (2003). The effects of environment-based education on students' critical thinking and achievement motivation. (Order No. 3105582, University of Florida). *ProQuest Dissertations and Theses,* 146-146.

Athman, J. A., & Monroe, C. M., (2004). The effects of environmental-based education on students' achievement motivation. *Journal of Interpretation Research*, 9 (1), 9-25.

Bachi, K., Terkel, J., & Teichman, M. (2012). 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.

Bandura, A., (2012). On the functional properties of perceived self-efficacy revisited. *Journal of Management*, 38, 9-44.

Bass, M. M., Duchowny, C. A., & Llabre, M. M., (2009). The effect of therapeutic horseback riding on social functioning in children with autism. *Journal of Autism and Developmental Disorders*. 39, 1261-1267.

Benefits of horse ownership for today's youth. *American Junior Paint Horse Association* (2010) Fort Worth, TX.

Cassutt, M., Cowboy prep. *Western Horseman Magazine.* Accessed April 8. 2013. http://www.westernhorseman.com/index.php/articles/young-horseman/article/542-cowboy-prep.html

Cook, L., (2010). The 1944 education act and outdoor education: from policy to practice. *History of Education: Journal of the History of Education Society*. 28(2), 157-172.

Esposito, L., McCune, S., Griffin, A. J., & Maholmes, V., (2011). Directions in human-animal interaction research: child development, health, and therapeutic interventions. *Child Development Perspectives,* 5 (3), 205-211.

Este, D., Sitter, K., & Maclaurin, B., (2009). Using mixed methods to understand youth resilience, In L. Liebenberg & M. Ungar (Eds.), Researching Resilience (pp. 201-224). Toronto: University of Toronto Press.

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*(1), 59-72.

Ewert, A., & Garvey, D., (2007). Philosophy and theory of adventure education. , In D. Prouty, J. Panicucci, & R. Collinson (Eds.), *Adventure Education: Theory and Applications* (pp. 19-32). Champaign, IL: Project Adventure.

Grabe, M., & Latta, R. M., (1981). Cumulative achievement in a mastery instructional system: the impact of differences in resultant achievement motivation and persistence. *American Educational Research Association*, 18 (7), 7-13.

Greenwald, A. (2001). The effect of a therapeutic horsemanship program on emotionally disturbed boys.*Dissertation Abstracts International: Section B: The Sciences & Engineering 62* (2B), 1078.

Iannone, V. (2003). Evaluation of a vocational and therapeutic riding program for severely emotionally disturbed adolescents. *Dissertation Abstracts International: Section B: The Sciences & Engineering 64* (3B), 1493.

Kaiser, L., Smith, A. K., Heleski, R., C., & Spence, J. L. (2006). Exploring the Bond: Effects of a therapeutic riding program on at-risk and special education children. *Journal of the American Veterinary Medical Association*, 228 (1), 46-52.

Kaiser, L., Spence, J. L., Lavergne, G. A., & Vanden Bosch, L. K. (2004). Can a week of therapeutic riding make a difference?—A pilot study. *Anthrozoös*, 17 (1), 63-74.

Komarraju, M., & Nadler, D., (2013). Self-efficacy and academic achievement: why do implicit beliefs, goals, and effort regulation matter? *Learning and Individual Differences*. 25, 67-72.

Mainella, P. F., Agate, R. J., & Clark, S. B., (2011). Outdoor-based play and reconnection to nature: a neglected pathway to positive youth development. *New Directions of Youth Development*. 130, 89-104.

Melson, G. F. (2003). Child development and the human-companion animal bond. *American Behavioral Scientist, 47*(1), 31-39.

Ormrod, J. E., (2012). *Human Learning*. (*6th ed*). New Jersey: Pearson Education Inc.

Panicucci, J., (2007). Cornerstones of adventure education. In D. Prouty, J. Panicucci, & R. Collinson (Eds.), *Adventure Education: Theory and Applications* (pp. 33-48). Champaign, IL: Project Adventure.

Partain, K., East meets west. *Western Horseman Magazine*. Accessed March 5. 2014. http://www.elkcreekranch.com/index.php?option=com_content&view=article&id=139&Itemid=135

Rosen, J. A., Glennie, E. J., Dalton, B. W., Lennon, J. M. & Bozick, R. N., (2010). *Noncognitive skills in the classroom: new perspectives on educational research*. RTI Press publication No. BK-0004-1009. Research Triangle Park, NC: RTI International. Retrieved 2/13/13 from http://rti.rog/rtipress.

Saunders-Ferguson, K., Barnett, R. V., Culen, G., & TenBroeck, S., (2008). Self-esteem assessment of adolescents involved in horsemanship activities. *Journal of Extension,* 46 (2), 1-7.

Schunk, D. H. (2005). Commentary on self-regulation in school contexts. *Learning and Instrucion*, 15, 173-177.

Schunk, D. H., Pintrich, P. R., & Meece, J. L., (2008). *Motivation in education: theory, research,and applications (3rd ed.).* New Jersey: Pearson Education Inc.

Schunk, D. H., (2012). Self-regulation, In Learning Theories: An Educational Perspective (399-443). Boston, MA: Pearson Education, Inc.

Sibthorp, J., Collins, R., Gookin, J., & Pohja, M. (2013). Fostering self-directed learning in college age students through wilderness semesters. *Journal of Outdoor Recreation, Education and Leadership*, *5*(2), 165-168.

Smith, C. E., Swinker, A. M., Comerford, P. M., Radhakrishna, R. B., & Hoover, T. S., (2006). Horsemanship and life skills of youth in horse programs. *The Professional Animal Scientist.* 22 (1), 89-93.

Steinmayr, R., & Spinath, B., (2009). The importance of motivation as a predictor of school achievement. *Learning and Individual Differences.* 19, 80-90.

Teram, E., & Ungar, M., (2009). Not just the master discourse: a case for holistic case studies of youth resilience, In L. Liebenberg & M. Ungar (Eds.), Researching Resilience (pp. 103-128). Toronto: University of Toronto Press.

Vallerand, R. J., Pelletier, L. G., Blais, M. R., Briere, N. M., Senecal, C., & Vallieres, E. F., (1992). The academic motivation scale: a measure of intrinsic, extrinsic, and amotivation in education. *Educational and Psychological Measurement*. 52, 1003- 1017.

Wattchow, B., & Brown, M., (2011). *A pedagogy of place: outdoor education for a changing world*. Victoria, Australia: Monash University Publishing.

Wigfield, A., Eccles, J. S., & Rodriguez, D., (1998). Chapter 3: the development of children's motivation in school contexts. *Review of Research in Education*, 23, 73-118.

Zimmerman, B. J., Bandura, A., & Martinez-Pons, M., (1992).Self-motivation for academic attainment: the role of self-efficacy beliefs and personal goal setting. *American Educational Research Journal*, 29, 663-676.

APPENDICES

APPENDIX A

SELF-EFFICACY FOR SELF-REGULATED LEARNING

SELF-EFFICACY FOR ACADEMIC ACHIEVEMENT

Using the scale below, indicate to what extent each of the following items presently corresponds to you in school.

Not Well At All		**Not Too Well**		**Pretty Well**		**Very Well**
1	**2**	**3**	**4**	**5**	**6**	**7**

Self-efficacy for self-regulated learning

1.	Finish homework assignments by deadlines?	1	2	3	4	5	6	7
1.	Study when there are other interesting things to do?	1	2	3	4	5	6	7
1.	Concentrate on school subjects?	1	2	3	4	5	6	7
1.	Take class notes of class instruction?	1	2	3	4	5	6	7
1.	Use the library to get information for class assignments?	1	2	3	4	5	6	7
1.	Plan you schoolwork?	1	2	3	4	5	6	7
1.	Organize your schoolwork?	1	2	3	4	5	6	7
1.	Remember information presented in class and textbooks?	1	2	3	4	5	6	7
1.	Arrange a place to study without distractions?	1	2	3	4	5	6	7
1.	Motivate yourself to do schoolwork?	1	2	3	4	5	6	7
1.	Participate in class discussions?	1	2	3	4	5	6	7

Self-efficacy for academic achievement

1.	Learn general mathematics?	1	2	3	4	5	6	7
1.	Learn algebra?	1	2	3	4	5	6	7

1. Learn Science?	1	2	3	4	5	6	7
1. Learn Biology?	1	2	3	4	5	6	7
1. Learn reading and writing skills?	1	2	3	4	5	6	7
1. Learn to use computers?	1	2	3	4	5	6	7
1. Learn foreign languages?	1	2	3	4	5	6	7
1. Learn social studies?	1	2	3	4	5	6	7
1. Learn English grammar?	1	2	3	4	5	6	7

© ***Albert Bandura 1989***

APPENDIX B

ACADEMIC MOTIVATION SCALE

WHY DO YOU GO TO SCHOOL?

Using the scale below, indicate to what extent each of the following items presently corresponds to one of the reasons why you go to school.

Does not correspond at all		**Corresponds a little**		**Corresponds moderately**		**Corresponds a lot**		**Corresponds exactly**
1	**2**		**3**	**4**	**5**		**6**	**7**

WHY DO YOU GO TO SCHOOL?

1. Because I need at least a high-school degree in order to find a high-paying job later on.	1	2	3	4	5	6 7
2. Because I experience pleasure and satisfaction while learning new things.	1	2	3	4	5	6 7
3. Because I think that a high-school education will help me better prepare for the career I have chosen.	1	2	3	4	5	6 7
4. Because I really like going to school.	1	2	3	4	5	6 7
5. Honestly, I don't know; I really feel that I am wasting my time in school.	1	2	3	4	5	6 7
6. For the pleasure I experience while surpassing myself in my studies.	1	2	3	4	5	6 7
7. To prove to myself that I am capable of completing my high-school degree.	1	2	3	4	5	6 7

8. In order to obtain a more prestigious job later on. 1 2 3 4 5 6 7

9. For the pleasure I experience when I discover new things never seen before. 1 2 3 4 5 6 7

10. Because eventually it will enable me to enter the job market in a field that I like. 1 2 3 4 5 6 7

11. Because for me, school is fun. 1 2 3 4 5 6 7

12. I once had good reasons for going to school; however, now I wonder whether I should continue. 1 2 3 4 5 6 7

13. For the pleasure that I experience while I am surpassing myself in one of my personal accomplishments. 1 2 3 4 5 6 7

14. Because of the fact that when I succeed in school I feel important. 1 2 3 4 5 6 7

15. Because I want to have "the good life" later on. 1 2 3 4 5 6 7

16. For the pleasure that I experience in broadening my knowledge about subjects which appeal to me. 1 2 3 4 5 6 7

17. Because this will help me make a better choice regarding my career orientation. 1 2 3 4 5 6 7

18. For the pleasure that I experience when I am taken by discussions with interesting teachers. 1 2 3 4 5 6 7

19. I can't see why I go to school and frankly, I couldn't care less. 1 2 3 4 5 6 7

20. For the satisfaction I feel when I am in the process of accomplishing difficult academic activities. 1 2 3 4 5 6 7

21. To show myself that I am an intelligent person. 1 2 3 4 5 6 7

22. In order to have a better salary later on. 1 2 3 4 5 6 7

23. Because my studies allow me to continue to learn about many things that interest me. 1 2 3 4 5 6 7

24. Because I believe that my high school education will improve my competence as a worker. 1 2 3 4 5 6 7

25. For the "high" feeling that I experience while reading about various interesting subjects. 1 2 3 4 5 6 7

26. I don't know; I can't understand what I am doing in school. 1 2 3 4 5 6 7

27. Because high school allows me to experience a personal satisfaction in my quest for excellence in my studies. 1 2 3 4 5 6 7

28. Because I want to show myself that I can succeed in my studies. 1 2 3 4 5 6 7

© ***Robert J. Vallerand, Luc G. Pelletier, Marc R. Blais, Nathalie M. Brière, Caroline B. Senécal, Évelyne F. Vallières, 1992***

APPENDIX C

QUALITATIVE QUESTION

Please answer the following question in detail.

1. How has being involved in the horse program affected your potential to be successful in school?