A CASE STUDY COMPARING THE LIFE SKILLS DEVELOPMENT AND KNOWLEDGE IN YOUTH PARTICIPANTS OF HORSELESS AND TRADITIONAL HORSE PROGRAMS IN UTAH

by

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

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ABSTRACT

A Case Study Comparing the Life Skills Development and Knowledge in Youth Participants of Horseless and Traditional Horse Programs in Utah

by

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Utah State University, 2019

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Traditional horse 4-H programming has been shown to increase life skills development and knowledge in youth, but less research examines the life skills development and knowledge gained in youth of horseless horse programs. This study evaluated and compared four horseless and seven traditional horse participants from Washington County 4-H in Utah for horse knowledge gained and for development of 10 life skills from the Hendricks targeting life skills model: leadership, teamwork, self-responsibility, personal safety, problem solving, decision making, critical thinking, goal setting, communication, and concern for others.

This study’s mixed methods design employed qualitative interviews to gather data on life skill experiences of the participants and to explore the barriers that prevented horseless youth from participating in traditional 4-H horse programs. The qualitative data was accompanied with quantitative data from a 20-item horse knowledge quiz and the 4-
H Common Measures, a demographics survey. Financing was identified as the most common barrier preventing horseless participants from having access to a horse and participating in the traditional 4-H horse program. Upon comparison, the traditional horse youth showed greater gains in knowledge and greater development of leadership, self-responsibility, decision making, goal-setting, and communication than the horseless youth.

Recommendations for future research into horseless programming included observational research in lieu of relying on self-perceived development data from participants, a qualitative investigation of the horse program from the perspective of the adult leaders, a needs assessment to determine which of the 35 life skills should be incorporated in a statewide horseless horse curriculum, and research that collects both pre and post programming participation to track the growth of life skills and horse knowledge in horseless and traditional horse participants. Another recommendation for future research in 4-H youth development was to continue to use theoretical frameworks that involve the Hendricks’s targeting life skills model and its 35 life skills for evaluation as the model continues to gain prevalence in 4-H programming and curriculum throughout the nation.

(116 pages)
PUBLIC ABSTRACT

A Case Study Comparing the Life Skills Development and Knowledge in Youth Participants of Horseless and Traditional Horse Programs in Utah

Haley Macdonald

Traditional horse 4-H programs develop life skills and knowledge in youth. Horseless horse programs lack evaluation for the same benefits. This study evaluated and compared four horseless and seven traditional horse participants from Washington County 4-H in Utah for gains in horse knowledge and development of 10 life skills that are commonly found in 4-H curriculum today: leadership, teamwork, self-responsibility, personal safety, problem solving, decision making, critical thinking, goal setting, communication, and concern for others.

The researcher conducted interviews to learn about life skill experiences of the horse program participants and discover what barriers prevented horseless youth from participating in traditional 4-H horse clubs. Participants also took a short knowledge quiz and a demographic survey. Money was identified as the most common reason horseless participants don’t have access to a horse and cannot participate in the traditional 4-H horse program. When compared, traditional horse youth showed greater life skill development and knowledge gain than horseless participants.

Recommendations for future research into horseless programming included using other forms of research to evaluate the program further and identifying life skills for a statewide horseless curriculum.
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I want to dedicate this achievement to my daughter, Shiloh, who I brought into this world while simultaneously working and progressing through my master’s degree. I want her to know that she can achieve anything in this world with the right amount of hard work, determination, and patience. I hope this achievement will inspire her to pursue higher education and to make her mark on the world.

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CHAPTER I
INTRODUCTION

Since 4-H began over 100 years ago, it has become the nation’s largest youth development organization. The four Hs on the cloverleaf and 4-H pledge stand for four life competency themes: head, heart, hands, and health. Having the consistent mission to develop life skills in youth, the 4-H framework adopted the targeting life skills model to illustrate specific life skills that 4-H strives to develop (Hendricks, 1998). The model includes life skills such as leadership, teamwork, goal setting, critical thinking, and communication. The development of life skills is the vital purpose of 4-H (Oklahoma State University Extension, 2012), empowering youth to reach their full potential while working and learning in partnership with caring adults.

Traditional 4-H programming is often delivered in a club format. The club is the basic unit of 4-H that meets regularly under the guidance of one or more volunteer leaders, elects its own officers, plans its own program, and participates in a variety of projects and activities (Utah State University Cooperative Extension, 2009). A 4-H project is a series of learning experiences that require constructive thought and action. A 4-H member’s project includes all the knowledge and skills gained from conducting a planned learning experience.

Due to its agricultural foundation, animal projects and programs have been hallmarks of 4-H. The 4-H online specialist said the horse and pony programs are particularly popular among Utah 4-H’s animal science programs (R. Griffin, personal communication, August 2, 2017). In Utah in 2016, the top two program areas included
animals (53,455) and leadership and personal development (22,491). Of the animal program areas, the horse and pony clubs comprised nearly a fifth (10,290) of the total animal program area enrollment. This horse and pony enrollment statistic is trumped only by the general animal program area with 35% enrollment (18,728) and is immediately followed by sheep enrollment (5,562; R. Griffin, personal communication, August 2, 2017).

In 2017, Washington County formed a Needs Assessment Committee to examine lowering traditional horse program enrollment rates of the county. They determined that Washington County’s changing demographics, socioeconomics, and land developments were contributing to more horseless youth, thus affecting enrollment in the Washington County traditional 4-H horse program. Committee responses pointed to the creation of a horseless horse program as a solution to the problem of lowered enrollment rates. Thus, a horseless horse program, called Horse Lovers Club, was created in Utah’s Washington County 4-H as an effort to reach a horseless youth audience in 2018 and to expand overall 4-H horse program enrollment in that county (Scow & Johnson, 2018).

Horseless Horse Programs/Projects (HHP) are designed for 4-H youth members who do not lease or own horses (Washington State University Extension & U.S. Department of Agriculture, 2003). Animal ownership, care, and riding are not required to participate in HHPs. While designed for horseless youth, some states allow 4-H horse-owning members to participate in HHPs as well. In Washington County, the horseless horse club was available for all 4-H youth, including 4-H members both with and without regular access to horses (B. Scow, personal communication, October 25, 2018).
Statement of the Problem

The development of life skills and knowledge in youth is a primary goal of 4-H horse programming. Research has shown that youth programs, including 4-H, that emphasize horse topics such as horsemanship, safety, health management, and nutrition help to develop life skills such as decision making, communicating, goal setting, thinking, and problem solving in youth (Smith, Swinker, Comerford, Radhakrishna, & Hoover, 2006). Traditional 4-H horse and pony clubs are intended to develop life skills and knowledge in youth who participate, yet the benefits of life skills development from the traditionally mounted 4-H horse programs are only accessible to youth who have regular access to horses through ownership or lease. This model of traditional horse programming for youth is exclusive and not reflective of the U.S. horse industry.

In 1990, Virginia’s Extension Professor, Arden N. Huff, called for “Advanced Understanding Needed” regarding horseless horse projects and programs after describing successful Virginia HHP models in the late 1970s and 1980s. Since then, these 4-H HHPs can be found in several Eastern and Midwestern states, including Virginia, Minnesota, Ohio, Kentucky, Kansas, and Wisconsin. HHPs are also established in the Western states of Colorado, Nevada, Washington, and Utah.

Despite the rising popularity of these programs, there is currently a lack of research and literature that empirically compares 4-H HHPs to traditional horse programs to discover their impact on life skill development and horse knowledge in youth. Boleman, Cummings, and Briers (2004) stated accountability through measurable impacts on youth is expected of Cooperative Extension, 4-H, and other youth
development programs. It is important to show measurable impacts through the use of empirical data that specifies the life skill development and knowledge gained as a result of participation in specific 4-H projects, such as the horseless horse and traditional horse programs (Boleman et al., 2004). Lack of prior literature on the development of life skills in youth participants of horseless horse programs presents a problem for stakeholders with a vested interest in the creation and success of programs of this nature.

**Purpose Statement**

The purpose of this study was to evaluate the life skills development and horse knowledge gained by youth belonging to a 4-H horseless horse program as compared to that of a traditional 4-H horse program. Additionally, the barriers that prevent horseless youth from participating in traditional 4-H horse programs were described.

**Research Questions**

1. What barriers prevent horseless youth from participating in traditional 4-H horse programs?

2. What life skills did horseless and traditional horse program participants develop?

3. What knowledge did horseless and traditional horse program participants gain in regard to horses, horse care, and understanding the responsibilities of horse ownership?

**Delimitation of the Study**

The horseless horse program chosen for evaluation was in its pilot year, and the
second year of the program was not included for evaluation in this study.

**Limitations of the Study**

The scope of this case study was limited to one county in Southwestern Utah. Washington County was the only county in Utah with a 4-H horse program that offered both horseless and traditional horse clubs. Generalizations should be considered with caution acknowledging the demographics of this small study. Participants were not randomly sampled; instead they were selected by the researcher through the roster of participants in the two 4-H programs provided by the Extension educator. The traditional horse participants have previous experience in 4-H horse programming, which can impact their existing knowledge of horses. The researcher did not assess the experience levels of the adult 4-H leaders and volunteers who taught the youth participants, which could impact what life skills and horse knowledge is shared with the study’s participants. Lastly, the sample might not be representative of the horseless youth who are unaware of 4-H programs in Washington County.

**Basic Assumptions**

1. Participants were honest about the life skills and knowledge they gained.
2. Each participant has a personal interest in horses.
3. Each participant who identifies as “horseless” has no regular access to or ownership of a horse.
Significance of the Problem

The horse industry contributes approximately $50 billion in direct economic impact to the U.S. economy and has a direct employment impact of 988,394 jobs (American Horse Council Foundation, 2017). There are a wide variety of careers in the horse industry, including but not limited to grooms, jockeys/riders, trainers, farriers, show organizers, barn managers, judges, and veterinarians. Many of these careers require knowledge of horses and accompanying life skills to be a part of the equine industry but do not require actual ownership of a horse. In the midst of an industry that does not necessarily require horse ownership, it can reasonably be deduced that 4-H should advance horse programs intended for youth who do not own or lease a horse.

Research has documented a major shift in Extension due to urbanization of the United States (Brandon, Tsamaase, Humphrey, & Crenshaw, 2018). Rural themes of agriculture, livestock, and family consumer science have thrived in 4-H for over 100 years. As the nation moves further away from rural themes and more urban and suburban communities form, 4-H offers clubs new project areas, such as science, math, technology, natural resources, and socialization. Utah counties, in particular, are expanding from rural audiences to offer unique clubs available to more urban youth including dog clubs, shooting sports clubs, and horseless horse programs. These clubs offer youth new opportunities in which to practice life skills, foster citizenship, and promote leadership opportunities while maintaining a commitment to the 4-H mission and tradition. Striking this balance of progression with tradition is a modern challenge 4-H faces (Borden, Perkins, & Hawkey, 2014).
Among the agricultural and animal science 4-H projects, horse and pony projects were the most popular programs behind general animal science in Utah in 2016 (R. Griffin, personal communication, August 2, 2017). Though unmounted 4-H horse projects, such as Horse Bowl, Hippology, demonstrations, public speaking, and art exist, they are primarily attended by horse-owning youth. Of the horse-owning youth who are able to participate in 4-H horse projects, most horse and pony 4-H youth participate in only the competitive riding events, despite being encouraged to participate in 4-H nonriding activities and events (Slocum, 2004). Washington County’s HHP was created as an attempt to increase enrollment in 4-H horse programs, projects, and activities.

Though there was sufficient research investigating the effects of livestock and judging programs on life skills development in youth, little research existed which investigated whether youth participating in traditional horse programs and horseless horse programs learn similar life skills and knowledge. Few, if any, Utah 4-H horse programs have been evaluated for impacts in life skills development of youth. Therefore, the comparative evaluation of Washington County’s HHP and traditional horse program serves as an essential step toward meaningful horse programming for youth in which positive life skill development and knowledge impacts can be measured, and a wider audience of youth may be reached in Utah. This information will be important to 4-H Extension faculty and staff who offer 4-H horse programs in the traditional and horseless settings.
Definition of Terms

*Communication:* “Exchange of thoughts, information or message between individuals; sending and receiving information using speech, writing, gestures and artistic expression” (Hendricks, 1998, p. 27).

*Concern for others:* “To worry about, give attention to, the well-being of others” (Hendricks, 1998, p. 29).

*Critical thinking:* “Strategies for analyzing, comparing, reasoning, and reflecting focused on deciding what to believe or do; discovering meaning; building connections with past learning” (Hendricks, 1998, p. 26).


*Goal setting:* “Deciding on the purpose or desired result; something to work toward” (Hendricks, 1998, p. 26).

*Horseless participants:* Also known as a horseless horse project member, a horseless participant is defined as a 4-H member without regular one-on-one access to a live horse through ownership, family connections, or lease (University of Wisconsin Extension, 2014).

*Leadership:* “To assist the group in meeting its goals by showing or directing along the way; using personal influence to guide the group in reaching its goal” (Hendricks, 1998, p. 30).

*Life skills:* “abilities individuals can learn that will help them to be successful in living a productive and satisfying life” (Hendricks, 1998, p. 4).
Personal safety: “taking care to avoid danger, risk, or harm; self-protection; being cautious, careful; physically and emotionally safe” (Hendricks, 1998, p. 32).


Self-responsibility: “Taking care of oneself; being accountable for one’s behavior and obligations; choosing for oneself between right and wrong” (Hendricks, 1998, p. 33).

Teamwork: “Work done by two or more people, each doing parts of the whole task” (Hendricks, 1998, p. 31).

Summary

This chapter introduced 4-H horseless horse programming. The researcher discussed the characteristics of life skill development in 4-H and its traditional horse programs, as well as the development of a horseless horse program in Utah’s Washington County. The lack of research on life skill development and knowledge gained in youth in horseless horse programs was described. This included the need for an evaluation of Washington County's horseless horse program and its comparison to a traditional horse program. This evaluation intended to determine whether life skills development and gains in knowledge are taking place as well as to determine the barriers preventing horseless youth from participating in traditional horse programs.
CHAPTER II

REVIEW OF LITERATURE

Emphasis in this study was placed on examining the gain in knowledge and life skills of youth who participated in a horseless horse program as compared to a traditional horse program. To address all concepts involved in the evaluation of the youth participants of a pilot horseless horse program, the review of literature was divided into the following sections: (a) 4-H and youth development, (b) traditional and horseless horse programming, (c) experiential learning theory, (d) life skills development, and (e) horse knowledge.

4-H and Youth Development

The Smith-Lever Act, signed by President Woodrow Wilson on May 8, 1914, established a national system of Cooperative Extension that expanded outreach programs through land-grant universities. The purpose of Cooperative Extension is to educate the public and industry producers through diffusing innovations, knowledge, practices, and technology that comes from land-grant university researchers, state agricultural experiment stations, and the U.S. Department of Agriculture (USDA; Rasmussen, 1989). Cooperative Extension also reports the problems and needs of the public and producers to researchers and administrators. This system of two-way communication that provides direction and speeds the dissemination and application of research results gives resonance as to why it is called Cooperative Extension. Since the beginning, Cooperative Extension education has addressed topics related to agriculture and family and consumer sciences.
These topics led to the creation of 4-H, the national youth development component of Cooperative Extension, and have played large roles in the informal youth education program (Rasmussen, 1989).

The formation of 4-H has been described as an example of “simultaneous discovery” happening in the early 1900s (Reck, 1951). The newfound Cooperative Extension Systems were encouraging many community-minded individuals to begin forming home project programs for rural youth, supporting these youth “in the performance of those worth-while everyday tasks that make for better living and richer personalities” (Reck, 1951, p. viii). Creating projects and ideas independently, budding youth development clubs were unaware of the same “simultaneous discovery” happening in communities elsewhere.

Boys’ and girls’ agricultural clubs soon emerged all over the nation, including corn clubs, tomato clubs, hog clubs, gardening clubs, and canning clubs. Unlike the 4-H clubs of today, these clubs were separated by gender (Reck, 1951). Despite this division, the structure of these clubs was the same: the youth elected “officers” and regular meetings were held after school (Enfield, 2001).

The boys’ and girls’ clubs provided practical agricultural education and an appreciation and understanding of nature, which public schools were failing to provide (Enfield, 2001). For example, the corn clubs, which benefited the youth with considerably higher corn yields, also practiced their reading, writing, and arithmetic skills. Youth practiced reading by studying publications on greater corn growing techniques. Measuring plots, weighing, and computing yields required youth to use
arithmetic skills. The youth then wrote reports on their corn projects, displaying their mastery and showcasing their great yields of corn (Baker, 1991). The youth were used as mediaries between university research and the community farmers. Beginning with the corn clubs of the early 1900s, youth were more receptive than their parents to new corn planting practices and adopting other aspects of change. Armed with reports, youth planned outings and exhibitions and practiced presentation skills when giving demonstrations to farmers and workers (Reck, 1951). Through these clubs, farmer parents were exposed to new farming methods and were more easily convinced to adopt new practices (Van Horn, Flanagan, & Thomson, 1998). The National 4-H organization has also used its hands-on, experiential learning approach to have their members build life skills. Life skills are “abilities individuals can learn that will help them to be successful in living a productive and satisfying life” (Hendricks, 1998, p. 4) and are best learned through practice and many reinforcing experiences (Norman & Jordan, 2006).

**Traditional 4-H Horse Programs**

The traditional Utah 4-H Horse Program was designed to develop life skills and knowledge in youth who are at least eight years old by participating in horse-related content and activities. States and their counties are unified in this overarching goal, yet they all differ in methods of delivery and program structure. Youth who participate in traditional horse projects in Utah traditionally care for, manage, and show one or more horses as a riding horse(s) or breeding project (mare or foal only). As part of the traditional horse projects in Washington County, the youth may participate in county contests, exhibitor meetings, fundraisers, service projects, and horse shows, including
written tests, judged horse events, and speed riding events. The Washington County 4-H Horse Guide of 2017 stated that youth who participate in the 4-H horse program will build life skills such as leadership, communication, and decision making and will also learn important horse skills. It claimed a horse project is the vehicle used to teach these skills in a fun way as youth learn experiences (Washington County Extension, 2017).

Several reasons exist for why horseless youth cannot participate in traditional horse programs. Expense and lack of support were two major barriers for membership in youth horse programs (Kurtzo, Leslie, Graham, & Russell, 2017). Arkansas parents and county agents reported that the cost of horse ownership was specifically an expense-related barrier (Kurtzo et al., 2017). The lack of support from parents also negatively impacted youth from participating in a horse club. Another barrier to traditional 4-H horse program participation was the demand of other extra-curricular activities youth participate in, which competes for their limited time. Together, the financial cost, time constraints, and lack of parental support were the top three limitations for Pennsylvania 4-H members (ages 13-18; Gill, Ewing, & Bruce, 2010). Less significant factors that limited or discouraged Pennsylvania 4-H participation included the availability of resources (land, barn, etc.), location conducive to horses, knowledge of the event/project, 4-H leaders, county 4-H educator, personal or family members’ allergies, and their fear of being in front of a crowd.

4-H Horseless Horse Programs

A 4-H horseless horse program accommodates youth who are interested in a horse program but do not have the means to own, lease, or interact with a horse. Horseless
horse curriculum exists in many states throughout the nation. The topics included in the horseless horse curriculums vary depending on the structure of the horseless horse programs. Topics can include, but are not limited to, horse breeds, colors, gaits, safety, health care and nutrition, grooming, tack, anatomy, farm management, and riding styles. Additionally, participants in horseless horse programs will interact with horses through a variety of opportunities, such as visiting a horse farm, attending a horse show, or conducting interviews with individuals in the equine industry, including veterinarians or farriers. Some horseless horse curriculum promote participation in the 4-H Horse Bowl, hippology, and horse judging.

**Theoretical Framework**

The theoretical framework for this study was experiential learning with the 4-H’s targeting life skills model. Several models of experiential learning have been used to design 4-H youth development program curricula and training for 4-H volunteer leaders (Enfield, 2001). Since its humble beginnings, 4-H has always embraced a “learn by doing” ideology. As early as 1903, Seaman A. Knapp was bolstering boys’ and girls’ demonstration clubs as an effort to bring new USDA farming practices into the homes, and subsequently fields, of farmers (Enfield, 2001). The clubs focused on result demonstration, which reported the results of projects that required a substantial time commitment, such as raising a lamb or hog (Rasmussen, 1989). By 1910, boys’ and girls’ club and home demonstration activities were part of a greater demonstration work that was carried out in 455 counties in 12 southern states by 450 agents (Rasmussen, 1989, p.
The idea of a Cooperative Extension agent performing demonstrations and leading boys’ and girls’ clubs in every county is credited to Knapp. The tradition of “learning by doing,” which stemmed from Knapp’s youth demonstration clubs, has continued through 100 years of 4-H programming and remains at the core of 4-H and Extension teaching practices today.

Enfield (2001) speculated that Knapp may have written about the value of hands-on learning before John Dewey published his beliefs on the subject in 1938. Knapp is quoted in 4-H and Extension literature as saying, “what a man hears, he may doubt; what he sees, he may possibly doubt, but what he does, he cannot doubt” (Rasmussen, 1989, p. 35).

In 1938, John Dewey published his beliefs on experiential learning theory. In his book, *Experience and Education*, Dewey (1938) described an experience as a situation revolving around and within an individual and involving two principles: interaction and continuity. These two principles intercept and unite.

An interaction interprets the educational function and force of an experience for an individual. Ideal learning experiences require carefully crafted interactions. The principle of interaction is made up of two factors: objective and internal conditions. Objective conditions are the environment an individual exists in at any moment in time, whether physical or imaginative, and internal conditions are the state of mind which the individual is entertaining at that same moment in time. Examples of objective conditions include the materials an individual interacts with, the social set-up of a situation in which a person is engaged, and how an educator interacts with the individual—both the words
an educator says and how they are spoken (Dewey, 1938). An effective educational interaction is made up of objective conditions that are appropriate for the mental and emotional capacity of the internal conditions of the individual. Dewey explained that objective conditions must be selected with consideration to the needs and capacities of the learner at a given time. In other words, context is key to selecting appropriate objective conditions. Dewey illustrated this with a clever metaphor, “It is no reflection upon the nutritive quality of beefsteak that it is not fed to infants” (pp. 47-48).

Every experience influences in some degree the objective conditions under which further experiences are had. This is the second principle of an experience: continuity. Continuity means that “every experience enacted and undergone modifies the one who acts and undergoes, while this modification affects, whether we wish it or not, the quality of subsequent experiences” (Dewey, 1938, p. 37). What individuals gain in knowledge and skill in one situation becomes the tools used for dealing with future situations. According to Dewey, “fully integrated personalities” are constructs of successive experiences (pp. 46-47).

This is all to say, “providing an experience alone does not create experiential learning. Experiences lead to learning if the participant understands what happened, sees patterns of observations, generalizes from those observations and understands how to use the generalization again in a new situation” (Norman & Jordan, 2012, p. 1). Therefore, it is important for educators to consider both the internal and external factors of Dewey’s principles of interaction and continuity when crafting positive learning experiences that will prepare learners for a lifetime of subsequent experiences.
Similar to Knapp, Dewey was concerned that traditional education of the time lacked practical applications of knowledge for youth. Dewey (1938) criticized traditional education’s failure to individualize objective conditions to the learner:

The trouble with traditional education was not that it emphasized the external conditions that enter into the control of the experiences but that it paid so little attention to the internal factors which also decide what kind of experience is had. (p. 43)

The emergence of 4-H learning by doing activities after school stood as a positive example of experiential learning theory in those early days.

Experiential learning theory was brought into focus and expanded upon several decades later with the work of educational theorist, David A. Kolb. He said that “learning is the process whereby knowledge is created through the transformation of experience” (Kolb, 1984, p. 38). To describe Dewey’s writings on experiential learning theory, Kolb and Fry (1974) designed a graphic representation that illustrates experiential learning as a circular set of four processes (see Figure 1): experience, reflection, conceptualization, and experimentation. McLeod (2013) described the process of these four concepts; a concrete experience takes place when a new situation or reinterpretation of an existing experience happens. A reflective observation of the new experience emphasizes the inconsistencies between experience and understanding. Abstract conceptualization is a new idea emerging from the reflection process. Active experimentation happens when the learner applies these new abstract concepts to life in order to observe the results. Like bases on a baseball field, each process must be touched upon, in order. No single stage of the cycle is effective as a learning procedure by itself. Effective learning only occurs when all four stages are executed by a learner (McLeod, 2013).
Enfield (2001) believed Carlson and Maxa’s (1998) five-step model to be the most common experiential learning model used by 4-H. Carlson and Maxa reported that 4-H had promoted the experiential approach to learning since the late 1970s. Eventually, a three sector and five-step experiential model evolved. The model, as seen in Figure 2, was based on the work of Pfeiffer and Jones (1981). The three sectors in the model are do, reflect, and apply. The five steps are (1) experience, (2) share, (3) process, (4) generalize, and (5) apply (Enfield, 2001). The first sector, do, consists of the first step, experience. Enfield described an experience as youth actively participating in an activity or experience before being told or shown how. The second sector, reflect, consists of the second and third steps: share and process. Youth describe the experience and their reactions then process the experience by discussing patterns observed. In the third sector, apply, the fourth and fifth steps of generalize and apply intend for youth to connect the experience to a real-world example and apply or practice what was learned to another situation (Enfield, 2001).

**Figure 1.** Kolb’s model of experiential learning (McLeod, 2013).
In 4-H projects, the role of the adult volunteer leader is to facilitate this five-step learning process. Enfield (2001) highlighted the importance of training adult leaders to overcome their years of traditional schooling and/or prior experiences teaching in 4-H to adopt teaching habits that follow the five-step experiential learning model. In order for the experiential learning to take place in 4-H, Enfield explained that volunteer leaders must do more than provide hands-on learning experiences. Adult volunteer leaders must also set the stage for experiential learning by asking questions at opportune moments and encouraging true reflection. Today, volunteer training materials and resources are the key to creating adult volunteer leaders who can facilitate true experiential learning according to the five-step model in 4-H programming.
Life Skills Development

4-H’s Targeting Life Skills Model

To operationalize the experiential learning theory, the researcher is using the targeting life skills model to measure life skills development in 4-H youth. The main focus of 4-H programming is to develop healthy and productive life skills in youth (Oklahoma State University Extension, 2012). Hendricks (1998) defined life skills as “abilities individuals can learn that will help them to be successful in living a productive and satisfying life” (p. 4). Hendricks’ targeting life skills model organized 35 life skills into four quadrants, which align with the 4-H Pledge: head, heart, hands, and health (Hendricks, 1996). Each quadrant contains two subcategories. Each subcategory defines three to five life skills, as shown in Figure 3. The head quadrant contains knowledge, reasoning, and creativity competencies sorted in the subcategories of managing and thinking. The heart quadrant contains personal and social competencies divided into the subcategories of relating and caring. The hands quadrant is made of vocational and citizenship competencies, sorted as giving and working subcategories. The health quadrant contains physical competencies arranged into being and living subcategories. The circular and sequential mapping of the 35 life skills represents a continuum of growth (Hendricks, 1998).

The purpose of the targeting life skills model was to simplify coordination of life skill development with age-appropriate behaviors to be more effective in achieving identified outcomes (Hendricks, 1998). Hendricks provided several age-appropriate indicator examples for each of the 35 life skills on the targeting life skills model.
Examples of age-appropriate indicators for leadership are for 5- to 8-year-olds, learning to listen when someone else is speaking; for 9- to 11-year-olds, identifying one’s own competencies; for 12- to 14-year-olds, negotiating personal and group needs; and for 15- to 19-year-olds, organizing groups to accomplish a purpose. Examples of teamwork indicators are: for 5- to 8-year-olds, understanding a one’s role as part of a family; for 9- to 11-year-olds, enjoyment in working with others of similar interests and abilities; for
12- to 14-year-olds, appreciating the contributions of team members; and for 15- to 19-year-olds, the ability to work effectively in a team. Some indicators of self-responsibility include: for 5- to 8-year-olds, accepting responsibility for one’s own actions; for 9- to 11-year-olds, differentiating between one’s own needs and wants; for 12- to 14-year-olds, exerts effort and perseveres to attain goals; and for 15- to 19-year-olds, being trustworthy. Examples of personal safety are: for 5- to 8-year-olds, learning appropriate responses to danger; for 9- to 11-year-olds, observing and identifying dangerous situations; for 12- to 14-year-olds, planning strategies to avoid danger; and for 15- to 19-year-olds, making lifestyle decisions about self-protection. Age-appropriate indicators for problem-solving are: for 5- to 8-year-olds, seeking solutions to problems; for 9- to 11-year-olds, identifying problems; for 12- to 14-year-olds, identifying a plan of action to resolve a problem; and for 15- to 19-year-olds, probing, devising, and implementing solutions to problems. Examples of decision-making indicators are: for 5- to 8-year-olds, choosing from two alternatives; for 9- to 11-year-olds, beginning to choose among several alternatives; for 12- to 14-year-olds, beginning to make personal decisions based on forethought; and for 15- to 19-year-olds, applying personal values criteria to choices. Some indicators of critical thinking include: for 5- to 8-year-olds, asking questions throughout an activity; for 9- to 11-year-olds, retaining information and developing comprehension of it; for 12- to 14-year-olds, examines various points of view; and for 15- to 19-year-olds, discovering principles underlying the relationship between two or more objects and then applying it. Examples of goal-setting indicators are: for 5- to 8-year-olds, exploring possibilities; for 9- to 11-year-olds, setting short term goals; for 12-
to 14-year-olds, setting long term goals and planning strategies to achieve them; and for
15- to 19-year-olds, implementing planned strategies, exerting effort and perseverance in
achieving a long-term goal. Some age-appropriate indicators of communication include:
for 5- to 8-year-olds, engaging in group discussion; for 9- to 11-year-olds, verbalizing
freely in small and familiar groups; for 12- to 14-year-olds, can give a basic presentation
to a group; and for 15- to 19-year-olds, expressing opinions and communicating ideas.
Finally, examples of age-appropriate indicators of concern for others are: for 5- to 8-year-
olds, showing caring concern for peers; for 9- to 11-year-olds, showing interest in others’
situations and having compassion for them; for 12- to 14-year-olds, considering what can
be done to help others and seeking those opportunities; and for 15- to 19-year-olds,
having a sense of social responsibility.

The 4-H targeting life skills model has been used in several studies to evaluate life
skills in 4-H since the turn of the millennium (Duerden & Witt, 2011; Fitzpatrick, Gagne,
Jones, Lobley, & Phelps, 2005; Fox, Shroeder, & Lodl, 2003). 4-H based studies using
this model found that participation in 4-H activities was positively related to youths' life
skill development (Ferrari, Hogue, & Scheer, 2004; Fox et al., 2003; Smith, Genry, &
Ketringer, 2005). Today, Cooperative Extension Services applies the model in several
states including, but not limited to Iowa, Florida, Oklahoma, Tennessee, Wisconsin,
Michigan, and Utah.

Several 4-H researchers have measured life skills development differently,
according to different target populations and Cooperative Extension programs. This study
uses the targeting life skills model (Hendricks, 1998) as a guide to organize the review of
literature on life skills development into the quadrants of hands, health, head, and heart.

**Hands Quadrant**

Of the life skills included in the hands quadrant, leadership and teamwork were commonly addressed throughout the literature. Leadership is a widely studied skill in positive youth development research. Connors and Swan (2006) performed a meta-analysis of leadership development studies spanning 1988-2003, showing a positive trend in the number of leadership studies done on the fields of agricultural education/FFA, followed by collegiate, extension/4-H, and least of all, community. Connors and Swan said “with accountability becoming more and more important, leadership programs at the local, state, and national level must be regularly studied to determine their relevance and long-term benefit to society” (p. 9).

This literature review discusses two main approaches to youth leadership development research concerning both 4-H and FFA. In the first, leadership is believed to have its own set of associated leadership life skills and in the second, leadership is a single skill in and of itself.

Aligning with the former concept of plural leadership skills, Kouzes and Posner (2010) stated that “leadership is not about personality; it is about behavior—an observable set of skills” (p. 15). A common example of this line of thought is research that focuses on Youth Leadership Life Skills Development (YLLSD), which is defined as youth self-assessed and organization-specific "development of life skills necessary to perform leadership functions in real life” (Miller, 1976, p. 2). Miller (1975, 1976) developed and refined a 60-indicator instrument called the Youth Leadership Life Skills Development
Scale, which has been used to measure YLLSD in both 4-H and FFA participants. Boyd, Herring, and Briers (1992) found a positive relationship between level of participation in the 4-H program and self-perceived YLLSD, showing that as participation in 4-H increases, self-perceived YLLSD also increases. Participating in many different 4-H leadership activities has a positive relationship with self-perceived gain in YLLSD (Seevers & Dormody, 1995). A livestock exhibition is a common example of a positive leadership development activity in 4-H and FFA. Youth participation in livestock exhibition activities has repeatedly shown at least moderate gains in self-perceived YLLSD (Anderson, Bruce, Jones, & Flowers, 2015; Davis, Stripling, Stephens, & Loveday, 2016; Harris, Stripling, Stephens, & Loveday, 2016; Walker, 2006).

When evaluating leadership life skills, the following has been recommended:

Emphasis should be placed on leadership development by encouraging youth to be members of the county 4-H and FFA livestock and horse committees, junior club leaders, etc. State-wide and county extension programming might be reevaluated for educational events like demonstrations, leadership training and state contests to attract youth with livestock projects. (Holmgren & Reid, 2007, p. 7)

Research which takes the second, and more modern, approach to studying leadership development in youth treats leadership as a single skill in the giving subcategory in the targeting life skills model. In this line of leadership research, a variety of 4-H alumni have identified leadership as a skill learned resulting from their experiences in 4-H (Fitzpatrick et al., 2005; Fox et al., 2003). In Fitzpatrick et al., youth 4-H alumni and adult volunteers were asked about their life skills development. The youth alumni were asked the open-ended question, “What life skills did you gain in your involvement in 4-H?” (p. 4). The adult volunteers were similarly asked, “What life skills
do you think 4-H members gained from being 4-H Club members?” (p. 4). Youth identified leadership as one of the skills gained due to their involvement in 4-H; however, leadership was not included among the responses of adult volunteers (Fitzpatrick et al., 2005). For 264 4-H alumni between the years of 1982 to 1988, 46% of respondents identified leadership as being primarily influenced by 4-H Club engagement. The researchers categorized other skills as leadership including responsibility, organizational skills, ability to run a meeting, time management, and following through (Fox et al., 2003). In this population, 85% of the 4-H Club alumni indicated they had developed other leadership-related skills, identified as citizenship, the ability to take orders, and networking (Fox et al., 2003).

One 4-H study, which examined leadership as both a singular life skill from the targeting life skills model and as a category for other skills gained by 4-H campers in 6th grade and higher, showed youth participants had positive gains in leadership and retrospective questions about leadership subskills as defined and categorized by the researchers (Garton, Miltenberger, & Pruett, 2007). The leadership skills that showed positive gains were working well with others, working as a member of a team, leading a group or team, taking charge of an activity, knowing how to prepare and lead an activity, sharing leadership with others, and knowing my responsibilities as a leader (Garton et al., 2007). Garton et al. noted the percentage of respondents who indicated improvement in their assertive leadership skills, like taking charge, was higher than the percentage of respondents who indicated improvement in their group-work leadership skills, like working with others or sharing leadership.
Fewer studies have discussed the influence 4-H horse participation or activities have on leadership development in youth. Slocum (2004) evaluated development of youth leadership life skills among 4-H youth participating in riding and/or nonriding events in the 2002 Mississippi 4-H Horse Show using the Youth Leadership Life Skills Development Scale. Results showed a statistically significant difference in YLLSD between 4-H members competing in both riding and nonriding competitive events and 4-H members involved in the riding or nonriding events only. In nonriding activities, like horse judging, horse bowl, hippology, horse demonstration, and horse public speaking, the youth showed no greater YLLSD than youth participating in competitive riding activities. The study also showed the longer the tenure in 4-H and the more hours devoted to 4-H, the higher the level of youth participation in 4-H leadership activities, and thus the greater the level of leadership life skills development in the youth. Another study evaluated nonriding horse activities in the Nebraska 4-H Horse Stampede, including Horse Bowl, horse demonstrations, horse public speaking, and art for influence on youths’ life skill development. In this study, the skill of leadership was ranked among the top six most-influenced life skills when youth agreed/strongly agreed ($M = 4.51$) their horse involvement made them better leaders (Anderson & Karr-Lilienthal, 2011).

Horse camps are a common 4-H event for measuring leadership as part of youth life skills development. In Kurtzo et al. (2017), the Arkansas 2016 4-H horse camp Extension staff and volunteer leaders were provided the opportunity to write in answers missing on the youth benefits items of participating in horse clubs. These responses agreed/strongly agreed to seeing growth in leadership skills among youth horse campers.
Growth in leadership was also shown in Arnold and Perry (2016), which evaluated a one-week 4-H horsemanship camp in Montana for growth in YLLSD organized into four constructs of the life skills: problem solving/critical thinking, responsibility, self-motivation, and leadership. In this study, all four constructs showed significant increases for 4-H youth but not among non-4-H youth. Arnold and Perry confirmed previous research that indicated 4-H youth excelled beyond their non-4-H peers in self-perceived YLLSD resulting from 4-H participation and nonriding horse activities. Another horse camp study evaluated life skills of at-risk youth participating in horse camps compared to generic life skills camps (Cole, 2005). Both horse camp and generic life skills camp youth were found to have a significant increase in leadership. The at-risk youth who participated in horse camps reported slightly higher self-perceived increases in leadership than the generic life skills program youth. At the conclusion of this program, 83% of all participants, including both groups of youth, listed leadership as one of three skills needing further improvement or development (Cole, 2005).

Teamwork, a life skill within the hands quadrant, has been moderately to highly influenced by 4-H and youth organization participation (Maass, 2004). Among the 35 life skills, teamwork tied for the third most influential life skill developed by participating in 4-H for more than one year, alongside self-discipline and self-responsibility (Maass, 2004). In open-ended questions about what life skills 4-H youth alumni and adult volunteers learned from their 4-H experiences, teamwork was a common theme among both groups (Fitzpatrick et al., 2005).

This trend of moderate to high development of teamwork resulting from 4-H
participation is consistent throughout research evaluating 4-H animal activities. One study evaluating life skills gained from the Idaho 4-H Livestock Judging Program, which included livestock, dairy, and horse judging contests, reported the program as being moderately influential on the development of teamwork and associated the skill with workforce preparedness (Nash & Sant, 2005). 4-H livestock exhibition activities also boast this level of self-reported moderate teamwork development from youth participants (Boleman et al., 2004). This trend continues with activities like 4-H horse camps, which have been shown to improve teamwork in youth, as reported by 26 out of 52 surveyed extension staff and volunteer leaders affiliated with an Arkansas 4-H summer horse camp (Kurtzo et al., 2017).

**Health Quadrant**

Self-responsibility/responsibility is referenced most often among life skills within the being subcategory (Anderson & Karr-Lilienthal, 2011; Boleman et al., 2004; Cole, 2005; Holmgren & Reid, 2007; Kurtzo et al., 2017; Prechter, Arnold, & Perry, 2016). In 4-H studies, self-responsibility has been reported as a highly influenced life skill among alumni reflecting on their 4-H experiences (Fitzpatrick et al., 2005; Fox et al., 2003; Maass, 2004). In Fox et al., 4-H club involvement was reported as the primary influence on self-responsibility by 58.8% of participants. Responsibility has also been repeatedly perceived, among both youth and parents, as the number-one life skill gained from a 4-H or FFA livestock project (Boleman et al., 2004; Holmgren & Reid, 2007). Involvement with livestock increases opportunities to learn and practice the skill of responsibility. For instance, 65 of 149 youth respondents (44%) indicated the responsibility they learned
from participating in a 4-H animal project had helped them complete homework assignments and school projects on time (Rusk, Summerlot-Early, Machimes, Talbert, & Balschweid, 2003). Furthermore, 27 of 149 respondents (18%) indicated the responsibility needed for 4-H livestock projects helped them to be more punctual at work.

Like livestock projects, horses are also believed to be good subjects with which one can learn and practice responsibility. Cole (2005) stated that “by learning responsibility and respect for a 1,000-pound horse, youth will also learn responsibility for their own actions and self-respect” (p. 2). Growth in responsibility can easily be seen in horse-related youth development research. Youth respondents indicated 4-H horse projects influenced them to have “learned a greater responsibility by working with a horse” (Anderson & Karr-Lilienthal, 2011, p. 3). In Prechter et al. (2016), 4-H youth who participated in a one-week equine camp showed significant increases in self-perceived responsibility development. When comparing the life skills development of 4-H and non-4-H youth groups who participated in equine camps, responsibility showed the largest difference in growth of life skills being developed (Prechter et al., 2016). In another 2016 4-H summer horse camp in Arkansas, the affiliated Extension staff and volunteer leaders reported responsibility among write-in responses which described additional benefits of participating in horse clubs.

Personal safety is a crucial life skill in the horse industry, so it is essential to discuss when understanding traditional and even horseless horse programming. Washington County’s leader guide states that “safety must always be the first consideration during horseless program activities” (Washington County Extension, 2017,
Due to its critical importance when handling animals, it is often taught, if not measured, in livestock and horse programs. Kurtzo et al. (2017) noted that “horsemanship and safety-based horse camps were developed in response to a statewide challenge to develop competitive 4-H members and retain those members as they approach adolescence” (p. 5). Participants’ increased safety and safety knowledge were accomplished goals of the 2016 Arkansas 4-H Summer horse camp (Kurtzo et al., 2017). But personal safety is a skill not isolated to 4-H horse programming. Smith et al. (2006) measured safety as one of several horsemanship skills developed in youth enrolled in 4-H and other youth organizations including the American Quarter Horse Youth Association, the United States Pony Clubs, and the National High School Rodeo Association in Pennsylvania and Colorado. In this study, safety was the second highest horsemanship skill youth in these programs were able to perform, behind handling horses. Smith et al. recommended that volunteer leaders of horse programs emphasize the horsemanship skill of safety, as results indicated these areas of focus contributed significantly to life skills development.

**Heart Quadrant**

As a relating subcategory skill, communication was commonly and widely addressed throughout literature evaluating life skills development in 4-H programming. Research has shown that increased levels of 4-H involvement significantly affects growth in communication skills, especially among older, female 4-H youth participants and alumni (Haas, Mincemoyer, & Perkins, 2015; Fitzpatrick et al., 2005). 4-H alumni involved between 1969 to 1998 (n = 223) ranked communication 17 out of the 36 life
skills taught by the 4-H program (Maass, 2004).

Parents perceived communication as being highly influenced in youth participating in 4-H livestock projects (Boleman et al., 2004). In 4-H camp settings and horse programs, youth participants showed moderate to high levels of self-perceived growth in communication (Garton et al., 2007; Smith et al., 2006).

In contrast to the relating subcategory skill of communication, the caring subcategory life skill of concern for others has been almost entirely ignored by previous researchers evaluating life skills development in 4-H and other animal/horse programming. In a study measuring concern for others among Arkansas 4-H horse club summer campers, 50 out of 51 respondents slightly to strongly agreed “increased concern for others” was a benefited skill in youth (Kurtzo, 2017). In another study, 4-H alumni participants, involved during the years of 1969 to 1998 ($n = 223$), perceived concern for others as an influential life skill taught by 4-H, despite ranking 25 out of the 36 life skills and tying with critical thinking, a head quadrant skill (Maass, 2004).

**Head Quadrant**

Duerden and Witt (2011) listed critical thinking, problem solving, and decision making as three of 10 life skills identified by practitioners as most in need of measurement development because of the wide array in which they had been previously measured. In the thinking subcategory, these three life skills are especially prominent in 4-H research and often studied together.

Among 1969 to 1998 alumni’s perceptions of skills taught by the 4-H program, critical thinking, problem solving, and decision making are all life skills with moderately
high responses (Maass, 2004). 4-H adult volunteers also observed life skill growth in 4-H youth; as seen in Fitzpatrick et al. (2005), where 95% of adult volunteers ($n = 43$) agreed 4-H helped youth in their programs learn how to make decisions.

4-H horse programs and camps, in particular, show greater increased growth in decision making, critical thinking, and especially problem solving when compared to non-4-H or non-horse groups (Cole, 2005; Prechter et al., 2016; Kurtzo et al., 2017). 4-H stakeholders, like volunteer leaders, parents, county agents, and Extension staff, agree horse club members received improved problem solving as a result of participating in 4-H horse programming (Kurtzo et al., 2017). In one study evaluating life skill growth in at-risk youth participants of a 4-H horse and a nonhorse comparison program, only the horse group participants showed a significant increase in problem solving skills as compared to the control group’s nonhorse participants (Cole, 2005). This phenomenon of life skills development in 4-H horse youth excelling beyond their non-4-H peers was also seen in Prechter et al. In this study, problem solving and critical thinking were lumped together into one construct and both 4-H and non-4-H youth perceptions were surveyed after they participated in affiliated horse camps. 4-H youth showed significant increases in perceived problem solving/critical thinking and non-4-H youth did not (Prechter et al., 2016). As for decision making, Smith et al. (2006) measured growth of this skill in youth participants of several horse/youth programs including 4-H, the American Quarter Horse Youth Association, the United States Pony Clubs, and the National High School Rodeo Association in Pennsylvania and Colorado. In that study, a significant positive relationship ($r = 0.50, p < 0.01$) was found between overall horsemanship and the skills
of communicating, decision making, critical thinking, problem solving, and goal setting. 4-H involvement significantly affects these five particular life skills (Haas et al., 2015).

Goal setting, a managing subcategory skill, is among the life skills most influenced by 4-H horse nonriding activities like horse bowl, demonstrations, public speaking, and art, along with handling pressure, respecting officials, sportsmanship, self-motivation, and leadership (Anderson & Karr-Lilienthal, 2011). Other 4-H animal projects, like beef projects, have also shown growth in setting goals as well as decision making and problem solving (Boleman et al., 2004). Alumni and parent volunteers agreed goal setting was influenced by 4-H club participation (Boleman et al., 2004; Fox et al., 2003; Kurtzo et al., 2017; Maass, 2004)

**Horse Knowledge**

Horse knowledge subjects taught in 4-H vary according to age and membership level. Some general horse knowledge topics taught in 4-H include nutrition and feeding practices, genetics, anatomy and physiology, reproduction and breeding, history and evolution, horse behavior and riding theory, horsemanship and safety, horse industry/careers, horse health care/diseases/veterinary science, hoof care/farrier science, horse types and breeds, coat colors and markings, and riding equipment. Nadeau, MacCabe Alger, and Hoagland (2007) tested 281 New England 4-H participants over the span of three years, showing that health and disease, breeds, colors and markings, and anatomy and physiology had the highest mean scores for equine knowledge. In contrast, the categories of nutrition, reproduction, and history and evolution showed the most need
for improvement based on lower test scores.

Participants in 4-H nonriding horse activities, like demonstrations, public speaking, Horse Bowl, and art, have shown increased knowledge in all of these areas, particularly horsemanship skills, horse care procedures, and safety/personal behavior around a horse (Anderson & Karr-Lilienthal, 2011). An online format of the Horse Bowl was evaluated in Colorado, from which 57% of youth participants \((n = 36)\) showed an increase in horse knowledge pertaining to content in the Colorado 4-H Horse Project Manual and Rule Book, equine resource texts, and online sources (Walls & Denniston, 2003). Nonriding workshops and clinics also create growth in knowledge (Capeheart, 2015). In Texas, a 5-day, nonriding, short-tour equine ambassador program showed growth in 4-H equine ambassador participants’ knowledge. The course included industry professionals’ demonstrations on topics of horse health, behavior, and career development opportunities, equestrian facility tours, and a look into the field of equine Extension and expectations of equine researchers. As a result of participating in this extensive 5-day course, the 4-H equine ambassadors’ knowledge grew from the intermediate level, where ambassadors understand basics of equine knowledge, to the expert level, where ambassadors have advanced understanding of college level equine science principles (Capeheart, 2015).

In contrast to 4-H nonriding activities’ knowledge development, 2- and 3-day, non-4-H, horse-riding clinics have shown growth in horsemanship knowledge of both youth and adult participants. In this study, “horsemanship” included knowledge of horse safety, bit and equipment selection and use, riding theory and techniques, riding over
obstacles, and trouble-shooting horse behavior when under saddle (Cavinder et al., 2010). The participants of these two- and three-day clinics indicated they gained more competence with handling their horses as a result of their participation. Cavinder et al. encouraged the development of knowledge-based horse programming in Extension by stating,

…in an era where many people do not come from a rural, horse-owning background, thus having minimal experience in horse ownership and care, it is vital that Extension programs continue to provide effective, educational opportunities to interested persons. (p. 7)

This study reinforces the concept, seen in previous research, that multi-day horse programs offer youth exposure to horse industry professionals and careers, thus increase youths’ desire to continue investing time with equine projects, enhancing horsemanship skills, and decreasing unsafe practices (Kurtzo et al., 2017).

Summary

The history of Cooperative Extension Services and 4-H were provided as a foundation for the experiential learning framework that is so important in youth development programs. This review of literature discussed the need for evaluating life skills and equine knowledge development of youth enrolled in youth organizations according to the experiential learning framework and the targeted life skills model. A detailed look at the life skills development research for 10 life skills in 4-H was provided. The need for an evaluation of a horseless horse program was illustrated by the success of life skills development in 4-H animal projects research and the lack of life skills development research focusing on horseless youth programs and projects. The following
chapter described the methodology for the case study design that would evaluate the
Washington County 4-H traditional horse program in comparison to the horseless horse program.
CHAPTER III

METHODOLOGY

The purpose of this study was to evaluate the life skills development and horse knowledge gained by youth in a 4-H horseless horse program as compared to that of a traditional 4-H horse program. Additionally, the demographics of participants and barriers that prevent horseless youth from participating in traditional 4-H horse programs were described. Lack of prior literature on the development of life skills in youth participants of horseless horse programs presented a problem for stakeholders with a vested interest in the creation of programs or the success of existing programs of this nature. The research questions that guided this study were the following:

1. What barriers prevent horseless youth from participating in traditional 4-H horse programs?
2. What life skills did horseless and traditional horse program participants develop?
3. What knowledge did horseless and traditional horse program participants gain in regard to horses, horse care, and understanding the responsibilities of horse ownership?

Research Design

This collective case study used a mixed-methods approach in which the members of the traditional and horseless horse programs in Washington County’s 4-H program participated in in-depth interviews to discover their life skills development and a quantitative exam to measure their horse knowledge.
A case study was defined as an in-depth description and analysis of a bound system, meaning one particular program or one particular classroom of learners (Merriam & Tisdell, 2016). The size of a bounded system can range in size from a single individual, several individuals, a group, an entire program or an activity (Creswell, 2013). The size of the bounded system and intent of the case study determines the type of case study used. In a collective case study, one issue or concern is selected but the inquirer selects multiple case studies to illustrate multiple perspectives of the same issue. Since this case study evaluated and compares two types of 4-H horse programs within the same county or site, it is considered a collective case study.

Case studies have the advantage of flexibility to incorporate multiple perspectives and consider the development of a particular person, group, or situation and then generalize the findings to a larger context. The qualitative portion of this case study used in-depth interviews to examine the youth participants’ experience in a traditional 4-H horse program and the pilot for a horseless horse program in Washington County, Utah. In-depth interviews are one of the most common qualitative methods. Advantages included viewing the naturalistic behavior of the participants, an increased depth of understanding participants’ experiences, and flexibility for the participants. This form of research has been useful for learning about the perspectives of individuals rather than group norms of a community (Mack, Woodsong, MacQueen, Gues, & Namey, 2005). Disadvantages include data reliability, a time-intensive commitment from the participant, and smaller sample sizes that may not be generalizable beyond the sample studied (Merriam & Tisdell, 2016).
The quantitative portion examined the knowledge gained by both traditional and horseless horse program youth in Washington County. The exam consisted of 20 questions on recognizing horse breeds and colors, farrier science, saddling a horse, and horsemanship. Each of these four sections contained five questions. Intended for youth ages 11 to 13 years old, the questions were written by the researcher based on content in the 4-H handbook, Horses and Horsemanship (National 4-H Council, 2001), content covered in the 2018 Horse Lovers Club meetings, and feedback from Extension faculty. Results were compared between the two groups to report knowledge gained.

**Selection of Participants**

The horse program of Washington County had 37 youth participants in the 2018 season, dispersed over six clubs, including five traditional riding clubs and one horseless club. Clubs with other topics like Horse Bowl and elective horse projects like art, brood mares, and public speaking were offered in Washington County. However, these clubs held little interest from the youth and were not often pursued. Many youth opted for only the traditional riding club or horseless club if they didn’t have access to a horse they could ride. Though an individual could choose to join any club in the county, regardless of location, the clubs had organically divided up by geographic location. They usually contained between five and 10 youth participants but could be as small as two youth from different families. The 2018 horse clubs in Washington County consisted of mainly junior and intermediate level participants, with very few senior 4-Hers. Every year, a horse council made up of adult volunteers led all of the horse clubs in the county by
organizing horse shows, arranging for specific club needs, scheduling events, and
allocating resources in partnership with the county Extension agent (B. Scow, personal
communication, January 19, 2019).

The traditional horse program had 32 members belonging to the following clubs:
Cactus Cutters, Wild Mustangs, Circle S Ranch, Apple Valley Saddle Club, and
Bloomington Brumbies. These five clubs met individually, with volunteer leaders, and
did riding practices two or three times per month, primarily focusing on three activities:
competitive horse judging, competitive speed riding events, and nonriding demonstration
events, such as giving horse-topic presentations to peers. The county had six shows in
2018, where the traditional club youth alternated participation in horse judging and speed
riding at every other show. The nonriding county demonstrations were graded by a panel
of three judges for a 1-week period in June. Points were awarded based on their
performance in these three events and accrued towards end-of-year awards (B. Scow,
personal communication, January 19, 2019).

In the horseless program, Horse Lovers Club (HLC), five horseless youth met for
1.5 hours, once a month, for 6 months in the 2018 4-H season. In April, a kick-off
meeting introduced the club curriculum and schedule. In May, HLC youth learned about
equipment and saddling a horse. In June, they focused on recognizing horse breeds and
colors. In July, a farrier gave a demonstration on hoof care. In August, HLC members
volunteered with horse rides at the 2018 Washington County Fair. Lastly, in September,
the HLC youth had learned about basic horsemanship and had the opportunity to groom,
saddle, and ride a horse, as aided by the traditional clubs’ youth.
The five youth participants of the 2018 horseless Horse Lovers Club and the 32 youth participants of Washington County’s five traditional horse clubs in 2018 were contacted as the purposive population for this study. An adequate sample size of four to 15 participants for a case study is appropriate (Stake, 2006).

Instrumentation

Demographic data was collected using the 4-H Common Measures demographics survey (National 4-H Council, 2016). This included information on participants’ age, grade, gender, race, participation in 4-H, and housing situation. The 4-H Common Measures demographics survey can be accessed with a user name and password from the Common Measures team at this website address: https://4-h.org/professionals/common-measures/.

A semistructured interview guide was followed when conducting the face-to-face interviews (Appendix A). A semistructured interview guide ensured the researcher would ask a series of questions to each participant, but the researcher had the freedom to probe beyond the answers to the questions, answer participants’ questions, or clarify questions (Berg, 2009). The questions about life skills were adapted from past literature on the targeting life skills model (Hendricks, 1998). The questions asked youth participants about their experiences with 10 targeting life skills: leadership, teamwork, self-responsibility, personal safety, problem solving, decision making, critical thinking, goal setting, communication, and concern for others. Additional questions were asked about the horse-owning status of participants, the activities in the programs, self-reflections
from the participants, and their future educational and career plans.

A 20-question quiz on junior-level horse knowledge was conducted to measure participants’ horse knowledge gained from participating in either traditional or horseless horse programs (Appendix B). The questions covered junior-level material, intended for 11- to 13-year-old youth, from the Horses and Horsemanship handbook (National 4-H Council, 2001). The quiz had five questions in each of the four topics emphasized in the horseless horse program: (1) breeds and coat colors, (2) farrier care, (3) saddling a horse, and (4) horsemanship. These topics were also addressed in the traditional horse program.

**Researcher Subjectivity**

The role of the researcher was to conduct the interviews and record participant responses. The researcher came from Weber County, approximately 300 miles north of Washington County and had no previous or current relationship with the participants. So, there was no concern of response bias due to a researcher relationship. The researcher was not a 4-H alumnus nor did the researcher work in Cooperative Extension. However, the researcher was a horse owner recreationally and worked in the horse industry as an equestrian facility manager in Mountain Green, Utah. Therefore, the researcher may have had involuntary biases about the benefits of participating in horse activities.

**Validity and Reliability**

Validity of the semi-structured interview guide and the horse knowledge quiz was established by a panel of faculty in the School of Applied Sciences and Technology, state
4-H equine specialists and the Washington County extension agent supervising the 4-H horse programs.

**Research Rigor**

Reliability and validity concerns in qualitative research is addressed by establishing trustworthiness (Lincoln & Guba, 1985; Merriam, 1995). Trustworthiness in the study was maintained by mounting safeguards against distortions from the researcher’s involvement with respondents. Credibility is a critical criterion in establishing trustworthiness, promoting confidence that the findings are accurately recorded. Transferability, a type of external validity in qualitative research, is concerned with demonstrating that the findings from the study are applicable to understanding other 4-H traditional and horseless horse clubs. The researcher provided a detailed account of the knowledge and skills gained from participating in either a 4-H traditional horse or horseless horse club to help others to evaluate the extent to which the findings and conclusions drawn are transferable. Rich, thick description and long, detailed quotations achieved transferability. Dependability refers to obtaining similar results if researchers repeated the study using the same methods, context, and participants. Confirmability relates to being objective, making sure the study’s findings are the results of the participants rather than the preferences of the researcher. To achieve confirmability and dependability, the researcher described in detail the data collection and analysis method and used an audit trail, triangulation of sources, and relevant studies to support the current study’s research questions and interpretation of the data. The audit trail consisted
of raw data (transcripts, field notes of interview records, and survey results), data reduction and analysis, and process notes.

**Data Collection**

The Washington County Extension agent emailed all horse club participants a brief introduction about the research study that included an option to opt-out of being contacted for the purpose of this study. The researcher had a list of phone and email contact information of the participants who were willing to be contacted. Participants’ parents were contacted via telephone using a recruitment script (Appendix C) and follow-up was conducted by email to arrange for the consent to do research and conduct the meeting to interview the youth participants. Tickets to the local rodeo were offered in exchange for voluntary research participation as an incentive. The interviews were held at the participants’ convenience on one of two days the researcher was in Washington County. Two interviews of traditional horse participants were conducted virtually, via Zoom meeting. Before beginning the interviews, the participants’ parents/guardians read the informed consent form and the youth assent form for the participants (Appendix D). The forms described the study’s purpose, procedures, risks, confidentiality, benefits, voluntary participation, IRB approval statement and investigator statement. The researcher answered any questions the participants had about participation. The parents/guardians were mailed a copy of the signed forms after the interviews.

Prior to the interviews, demographic information was collected via intensive interviews and the 4-H Common Measures demographics survey, a survey approved by
the National 4-H Council. Demographic information included age, grade, gender, race,
generic area of residence, level of participation in 4-H, and future career and educational
plans. Care was taken to follow IRB protocol, which preserved the anonymity of
participants. The interviews lasted roughly 30 minutes with the researcher reading the
questions to the youth participants. This ensured that youth were tested on their
knowledge of horses and not their reading and testing capabilities. Participants also
completed a 20-question exam on junior-level horse questions intended to measure horse
knowledge gained from participating in the 4-H horse program. This exam took less than
30 minutes to complete.

As part of the data collection procedures, each interview was audio recorded, and
the researcher took notes while conducting the interview. To ensure authenticity, the
interviews were transcribed verbatim. The interview participants’ true names were in no
way be associated with the audio or transcript files. Only the researcher knew the true
names. In the interview transcripts, participants were identified by number according to
the order they were interviewed. The audio files and interview transcripts were stored in a
password-protected university Box account, and the audio files were destroyed after
transcription was completed. Additionally, the county extension agent supervising the 4-
H clubs was encouraged to share documents in the form of lesson plans and activities the
participants did in order to provide context for the results of this study. These documents
contributed as data sources and complemented the information participants provided as
they were reflective of the life skills and knowledge about horses they have gained
through participation in their club. These documents were collected via email.
Data Analysis

For research question one, the descriptive statistics were computed in SPSS version 24, including frequencies and percentages. To answer research questions one and two, the interview transcripts were analyzed using the constant comparison method using NVivo 12, a qualitative and mixed-methods data analysis software package (Glaser & Strauss, 1967). The initial open coding process was to organize the data and make sense of the information. The initial open coding helped the researcher create categories by comparing the responses to prior, but similar, responses. Following the open coding, axial coding was then used to help the researcher sort each theme or category into sub-categories. For research question four, horse knowledge exam questions were scored as right or wrong. The range, mean, and standard deviation were reported for the entire quiz for the horseless horse program participants as compared to the traditional horse program participants. For each multiple-choice or true-false question on the quiz, the frequency of participants who answered each answer choice was reported (Lord, 1952).

Summary

This collective case study used mixed methods to evaluate and compare a 4-H horseless horse club and traditional horse program in the same county for development of life skills and knowledge. Participants were from Washington County’s 4-H horse youth. The mixed methods design included intensive interviews, a 4-H demographics survey, and a researcher-developed horse knowledge exam. Research rigor was carefully maintained through qualitative functions of reliability and validity, especially by
establishing trustworthiness, credibility, transferability, dependability, and confirmability. Data collection took place in a Washington County Extension office and precautions were taken to protect youth participants according to IRB approval. Data Analysis was conducted by NVivo software for interview data and knowledge exams were graded for correct answers. Data from both groups were evaluated and compared.
CHAPTER IV
RESULTS

The purpose of this study was to evaluate the 4-H horse program in Washington County by comparing the development of life skills and knowledge gained among the horseless and traditional horse participants in that program. The theory of experiential learning was used as a theoretical framework, and 10 life skills from the targeting life skills (TLS) model were evaluated through qualitative interviews. Knowledge gained was measured through a quantitative quiz and demographic data was collected through a 4-H approved survey and the qualitative interviews. Eleven 4-H horse program participants participated in the study.

Participant Demographics

This study revealed the demographic characteristics of four horseless and seven traditional horse program participants in Washington County using a 4-H approved demographic survey. The demographic data included gender, race, age, grade, place of residence, years completed in 4-H, hours spent each week on 4-H activities, and level of involvement in 4-H. First, the participants consisted of predominantly females \( n = 4 \) horseless, \( n = 6 \) traditional). The only male was a traditional horse participant. The majority of the respondents were also white or Caucasian \( n = 2 \) horseless, \( n = 7 \) traditional). Two horseless participants indicated being “more than one race.” Ages of horseless participants were not very diverse, ranging from 10- to 13-years-old with a mean age of 11-years-old. For the horseless horse participants, the mode for age was
11. Traditional horse participants’ ages ranged more widely from 11- to 16-years-old with a mean age of 13-years-old. For the traditional horse program, two participants were in each of these ages: 12, 13, and 16.

Overall, grades of the participants also ranged widely from grade 4 to 11, with horseless youth ranging in grades 4 to 8 and traditional horse youth ranging from grades 5 to 11. The participants in this study reported living in one of three places: a farm (n = 0 horseless, n = 3 traditional), a non-farm rural area with a population less than 10,000 (n = 2 horseless, n = 1 traditional), or a town with a population of 10,000 to 50,000 (n = 2 horseless, n = 3 traditional).

Participants also indicated how many years they had been participating in 4-H: one year (n = 2 horseless, n = 0 traditional), two years (n = 1 horseless, n = 1 traditional), four years (n = 0 horseless, n = 5 traditional), or five or more years (n = 1 horseless, n = 1 traditional). The horseless participant who indicated five or more years in 4-H had experience in other non-horse 4-H clubs prior to participating in the horseless horse club. Participants then indicated how many hours per week they participate in 4-H activities: less than one hour per week (n = 2 horseless, n = 0 traditional), one hour per week (n = 1 horseless, n = 4 traditional), two hours per week (n = 0 horseless, n = 2 traditional), three hours per week (n = 0 horseless, n = 1 traditional), or four hours per week (n = 1 horseless, n = 0 traditional). Both groups indicated being involved in clubs (n = 4 horseless, n = 6 traditional) and working on projects at home (n = 2 horseless, n = 5 traditional). Traditional horse participants also indicated being involved in community service projects (n = 5), local fairs and events (n = 4), and after-school programs (n = 1).
None of the horseless participants were involved in community service projects, local fairs and events, and after-school programs. All of the participants indicated being involved at the county level of 4-H, three at the state level (\( n = 1 \) horseless, \( n = 2 \) traditional), and none at the national level.

Participants were asked about their future educational and career plans. Seven participants indicated or implied they wanted to go to college (\( n = 3 \) horseless, \( n = 4 \) traditional). One traditional horse participant, Interviewee 1, would consider college if it led to a career with horses. Whereas, horseless Interviewee 3 did not mention college, so it is unclear if that individual would attend college or not. When all participants were asked about future career plans, responses included being a veterinarian (\( n = 2 \) horseless, \( n = 2 \) traditional), having an undecided career with horses or other animals (\( n = 1 \) horseless, \( n = 3 \) traditional), having a non-horse industry career (\( n = 0 \) horseless, \( n = 3 \) traditional), ranching (\( n = 1 \) horseless, \( n = 0 \) traditional), and being a professional horse trainer/rodeo rider (\( n = 0 \) horseless, \( n = 1 \) traditional). The non-horse industry careers chosen by three traditional horse participants were hotel management, owning a recreational vehicle business, and professional singing.

**What Barriers Prevent Horseless Participants from Participating in Traditional 4-H Horse Programs?**

One stipulation for participating in Washington County’s traditional horse program is having access to a horse. All four participants in the horseless program indicated they did not borrow, lease, or own a horse. Money or financing was the most
common barrier to having access to a horse \((n = 3)\). Two participants indicated property zoning limitations, such as the lack of appropriate “fencing” and “shelter” for a horse. Other barriers were school work \((n = 1)\), traveling from home to a stable \((n = 1)\), and the time commitment of caring for a horse while simultaneously caring for chickens \((n = 1)\).

**What Life Skills Did Horseless and Traditional Horse Program Participants Develop?**

**Leadership**

In this study, the definition of leadership is “to assist the group in meeting its goals by showing or directing along the way; using personal influence to guide the group in reaching its goals” (Hendricks, 1998, p. 30). The majority of participants did not share instances of learning or practicing leadership, formally or informally, in their program \((n = 4\) horseless, \(n = 3\) traditional). Furthermore, two of the horseless participants did not share because they could not remember. Both traditional and horseless participants indicated that adults led the 4-H activities \((n = 2\) horseless, \(n = 2\) traditional), so these participants had no opportunities to practice leadership. Two of these traditional horse participants indicated their mothers were examples of leadership in the program because they coordinated the program activities and riding practices. However, there were four traditional horse participants who shared examples of participating in formal, structured leadership roles or activities in 4-H, including leading the 4-H pledge \((n = 2)\); serving as the president, vice president, or secretary \((n = 1)\); being on the party planning committee \((n = 1)\); or being a trail ride leader \((n = 1)\). Interviewee 8, who acted as trail leader, said
We appoint our roles in the club; I was appointed trail leader, and I got to text everything out to them and led the group... As a trail leader, we find the place where we go out on the trail... We lead the group to wherever we're going: swimming in the river, going up the mountain side, et cetera.

### Teamwork

In this study, teamwork is defined as “work done by two or more people, each doing parts of the whole task” (Hendricks, 1998, p. 31). Both horseless participants and the traditional horse participants described teamwork activities ($n = 3$ horseless, $n = 6$ traditional). The majority of horseless participants practiced teamwork when they saddled and mounted a horse ($n = 3$). Horseless participants worked in teams to lift a heavy western saddle with the help of an older peer and passing parts of the saddle to each other while fitting it to the horse. When horseless participants rode a horse, they helped each other mount the horse and took turns to ride. Both traditional horse and horseless participants recalled participation in teamwork games ($n = 1$ horseless, $n = 1$ traditional). The traditional horse participant, Interviewee 8, described a mounted team racing game: “You have a piece of toilet paper, and you hold it between the two horses, and the goal is to not break it.” The horseless participant, Interviewee 9, recalled an unmounted learning game where one horseless participant pretended to be a horse and the other led that participant from the left side with a lead rope. Other participants identified service projects where they practiced teamwork ($n = 0$ horseless, $n = 4$ traditional). Specific service project activities mentioned were cleaning up wires from a farmer’s field ($n = 1$) and cleaning up after the local Dixie Roundup Rodeo ($n = 1$). Additional teamwork
activities for traditional horse participants were setting up poles and obstacles together at riding practice \((n = 1)\) and memorizing riding patterns as a team and helping each other to remember the patterns \((n = 1)\). Of the 11 horse program participants, one horseless participant could not recall a teamwork experience, and one traditional horse participant did not share an experience of learning teamwork in 4-H.

**Self-Responsibility**

Self-responsibility is defined as “taking care of oneself; being accountable for one’s behavior and obligations; choosing for oneself between right and wrong” (Hendricks, 1998, p. 33). The majority of participants indicated that caring for a horse is one way to practice self-responsibility \((n = 4\) horseless, \(n = 6\) traditional). Examples of responsibly caring for a horse included feeding and watering it on a regular schedule \((n = 3\) horseless, \(n = 4\) traditional), washing and grooming \((n = 2\) horseless, \(n = 5\) traditional), cleaning up after it \((n = 1\) horseless, \(n = 3\) traditional), providing safe and comfortable housing \((n = 3\) horseless, \(n = 0\) traditional), scheduling regular hoof care \((n = 1\) horseless, \(n = 2\) traditional), using safe handling and transportation practices \((n = 1\) horseless, \(n = 0\) traditional), and taking a rectal temperature \((n = 0\) horseless, \(n = 1\) traditional). Other than horse care examples, one traditional horse participant gave a self-responsibility example of caring for riding equipment by not leaving it out in the sun.

Six traditional horse participants experienced self-responsibility more thoroughly than the four horseless participants because they regularly cared for a horse and/or riding equipment in the 4-H horse program and/or at home. Although the four horseless participants provided examples of how they would responsibly care for a horse, none of
them had the opportunity to practice these acts of self-responsibility during their time in the horseless club. One horseless participant recalled seeing and learning about grooming and farrier equipment in a demonstration, but not actually grooming a horse. Another horseless participant recalled learning in 4-H about the importance of shutting gates to prevent horses from getting loose, then practiced this later at a non-4-H horse camp.

**Personal Safety**

In this study, personal safety is defined as “taking care to avoid danger, risk, or hard; self-protection; being cautious, careful; physically and emotionally safe” (Hendricks, 1998, p. 32). Both the horseless and traditional horse participants suggested wearing safe attire around horses as a way to practice personal safety. Safe attire included wearing a helmet \( n = 3 \) horseless, \( n = 6 \) traditional), boots or closed-toe shoes \( n = 3 \) horseless, \( n = 3 \) traditional), pants \( n = 3 \) horseless, \( n = 2 \) traditional), and a t-shirt \( n = 1 \) horseless).

The participants also indicated the importance of behaving appropriately around horses as a way of practicing personal safety. Safe behavior around a horse included having spatial and self-awareness around a horse, including not standing directly behind a horse, being aware of your feet when handling a horse, using proper riding position to avoid falling off a horse and/or being dragged by a horse, and being aware of things around you that may spook a horse \( n = 4 \) horseless, \( n = 6 \) traditional). Other safety behaviors described were acting calm, speaking softly or quietly, and avoiding loud noises \( n = 3 \) horseless, \( n = 2 \) traditional). Two participants also shared how they gain control of an unruly horse when riding by pulling its head around to their knee \( n = 1 \)
horselss, \( n = 1 \) traditional).

Four participants practiced personal safety by attending to the horse’s attire. Two traditional horse participants highlighted the importance of tack-checks to ensure that tack is well-fitted and secure; one traditional horse participant named specific riding equipment for specific jobs (sliders and polo wraps as leg protection for reining horses), and one horseless participant said she took care to place a saddle on a horse softly and carefully to avoid laying the horse’s hair in the wrong direction and causing discomfort to the horse.

**Problem Solving**

For the purpose of this study, problem-solving is defined as “clearly identifying a problem and a plan of action for resolution of the problem” (Hendricks, 1998, p. 25). Neither the traditional horse nor the horseless participants could identify specific examples of problem-solving skills gained from their participation in the 4-H horse program. None of the horseless participants recalled having an experience of problem solving in the 4-H horse program. Six traditional horse participants either indicated having no problems to solve in 4-H or gave an example that did not fit the definition of problem solving. Only one traditional horse participant, Interviewee 8, shared a problem-solving experience in the 4-H horse program:

We don’t really focus on [problem solving] as a club; it has just come up occasionally. Like, how to make 4-H practice fit into everybody’s schedules… with a lot of the riders in your group, you have to find out a time that would be good for everyone to go to the practice. You have to text everybody, then you get multiple answers and replies like, ‘I want to go this time,’ and another person says another time, so you just have to coordinate it all and then say, ‘OK. This works. Let’s go here at this time.’
Interviewee 8 described using this form of problem-solving for coordinating group projects at school, too.

**Decision Making**

In this study, decision making is defined as “developing good judgement, gathering information to make good decisions, and choosing among several alternatives” (Hendricks, 1998, p. 25). It is noteworthy that none of the participants were presented with opportunities to choose from several alternatives. Decision making opportunities were limited to choosing between two alternatives ($n = 4$ horseless, $n = 5$ traditional).

When asked to share circumstances of decision making in the 4-H horse program, the horseless participants all described decisions from the day they got to ride a horse. They made decisions about whether or not to ride or not to ride the horse ($n = 2$), to walk or to trot ($n = 2$), and to turn the horse left or right ($n = 1$). Traditional horse participants were also faced with two-alternative decisions: whether or not to sell their horse with the help of a family member ($n = 2$), whether or not to participate in a 4-H horse event/program ($n = 2$), whether to feed alfalfa or grass with the help of a family member ($n = 2$), which of two horses to ride in 4-H practice ($n = 1$), and whether or not to accompany a parent when taking a horse to the vet to be euthanized ($n = 1$). Finally, one traditional horse participant did not recall decision-making experiences in the 4-H horse program.

**Critical Thinking**

In this study, critical thinking is defined as “strategies for analyzing, comparing, reasoning, and reflecting focused on deciding what to believe or do; discovering
meaning; building connections with past learning” (Hendricks, 1998, p. 26). Many of the participants were not familiar with critical thinking and thus could not share examples of practicing critical thinking in the 4-H horse program (n = 4 horseless, n = 3 traditional). Three traditional horse participants gave examples that do not fit in this study’s definition of critical thinking, including memorizing movements in riding patterns and giving a horse cues. These responses did not demonstrate age-appropriate understanding of critical thinking.

Only one participant displayed an understanding of critical thinking that aligned with this study’s definition. Interviewee 10, a traditional horse participant, described the critical thinking experiences of “thinking logically of what’s going to happen if you go here, next to this animal, and how it’s going to react to whatever, and what if that does happen, what are you going to do about it.” Interviewee 10 also described thinking about where to ride in the arena, in proximity to other horses that may be acting up, saying, “You have to decide whether you want to space it out or go around them.”

**Goal Setting**

Goal setting, as defined in this study, is “identifying a desired purpose or result, identifying tasks or steps necessary to achieve goals, making and following an action plan, and revising the plan if the goal is not met” (Hendricks, 1998, p. 26). Goal setting experiences among participants ranged widely from no experiences of setting or accomplishing any goal to setting informal personal goals and setting formal 4-H-centered goals. Two horseless participants indicated having no experiences of setting goals in the horseless program. Whereas, the other horseless participants indicated having
informal personal goals of learning how to ride a horse \((n = 2)\) and one day owning a horse of their own \((n = 1)\). Similarly, six traditional horse participants had informal goals of improving their current riding skills. Of all of the participants, only one traditional horse participant described a formal goal set in the 4-H horse program. This participant, Interviewee 5, described an occasion where the 4-H club had an official fundraising goal, which they achieved by offering pony rides to people at the local fair.

**Communication**

Communication, in this study, is defined as the “exchange of thoughts, information or message between individuals; sending and receiving information using speech, writing, gestures and artistic expression” (Hendricks, 1998, p. 27). Most of the participants shared an experience of practicing verbal communication in the horse program \((n = 2\) horseless, \(n = 7\) traditional). Common verbal communication experiences shared by the participants were instances of them asking questions to judges, instructors, or adults \((n = 1\) horseless, \(n = 4\) traditional); public speaking opportunities like demonstrations or presentations \((n = 0\) horseless, \(n = 5\) traditional); and communicating with the horse through vocal cues \((n = 1\) horseless, \(n = 3\) traditional).

Developing and understanding nonverbal communication methods is part of developing the communication skill. Nonverbal communication experiences among participants included understanding a horse’s mood through the animal’s body language \((n = 3\) horseless, \(n = 3\) traditional) and in-turn communicating to the horse through riding cues \((n = 2\) horseless, \(n = 3\) traditional). One traditional horse participant responded that participating in a 4-H demonstration taught them eye contact as a form of nonverbal
Concern for Others

Concern for others is “to worry about or give attention to the well-being of others, offering assistance to those in need, being aware of their own emotions and feelings, and showing compassion and caring for others’ feelings” (Hendricks, 1998, p. 29). Five participants did not identify an experience of developing concern for others (n = 2 horseless, n = 3 traditional). However, five others did share instances of having concern for peers’ emotional and physical well-being and showing them compassion (n = 1 horseless, n = 4 traditional). One horseless participant expressed the importance of having concern for the horses but shared no specific experience of this in the 4-H horse program.

What Knowledge did Horseless and Traditional Horse Program Participants Gain in Regard to Horses, Horse Care, and Understanding the Responsibilities of Horse Ownership?

Horseless participants scored 50% to 75% correct on the horse knowledge quiz, and traditional horse participants scored at or above 90% correct. The average score of horseless participants was 12.75 out of 20 (SD = 2.22), and the average score of traditional horse participants was 18.86 out of 20 (SD = 0.90). The quiz was divided into four sections of content that both programs learned: (a) breeds and coat colors, (b) farrier care, (c) saddling a horse, and (d) horsemanship.
Breeds and Coat Colors

All of the traditional horse participants correctly responded to the questions in the breeds and coat colors section, as seen in Table 1. The horseless participants displayed partial knowledge in this area, as seen by the 25% or 50% of participants who answered the questions regarding markings incorrectly.

Table 1

Correct Responses for Knowledge Questions about Breeds and Coat Colors

<table>
<thead>
<tr>
<th>Knowledge question</th>
<th>Horseless</th>
<th></th>
<th>Traditional</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A golden horse with a white mane and tail is called a _________</td>
<td>2 50</td>
<td>7 100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>What horse breed always has a pinto coat pattern?</td>
<td>4 100</td>
<td>7 100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Which of these is a real horse breed?</td>
<td>4 100</td>
<td>7 100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>What is the name of a white spot marking on the forehead?</td>
<td>3 75</td>
<td>7 100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>What is the name of this white marking on the leg?</td>
<td>3 75</td>
<td>7 100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Farrier Care

In the farrier care section, traditional horse participants indicated correct responses to all questions except question 6: “This part of the hoof is called the _________,” coupled with a black and white illustration of the hoof, from the 4-H handbook, and a line pointing to the frog of the hoof. As seen in Table 2, none of the horseless participants answered question 6 correctly. Among both groups, the incorrect answer indicated was the “sole.”

Saddling a Horse

The traditional horse participants displayed knowledge of parts of the western
Table 2

**Correct Responses for Knowledge Questions about Farrier Care**

<table>
<thead>
<tr>
<th>Knowledge question</th>
<th>Horseless</th>
<th></th>
<th>Traditional</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Someone who trims and shoes horse hooves is called a ________</td>
<td>3</td>
<td>75</td>
<td>7</td>
<td>100</td>
</tr>
<tr>
<td>This part of the hoof is called the ________</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>71</td>
</tr>
<tr>
<td>What does it mean when a horse is lame?</td>
<td>3</td>
<td>75</td>
<td>7</td>
<td>100</td>
</tr>
<tr>
<td>The tool used to clean dirt from the inside of a horse’s hoof is called a ________</td>
<td>4</td>
<td>100</td>
<td>7</td>
<td>100</td>
</tr>
<tr>
<td>True/False: Horse hooves grow continually.</td>
<td>4</td>
<td>100</td>
<td>7</td>
<td>100</td>
</tr>
</tbody>
</table>

saddle. All traditional horse participants correctly indicated the fender, horn, and cantle, and the majority indicated the fork and skirt correctly (Table 3). All of the horseless participants correctly indicated the horn of the western saddle but displayed less understanding of the rest of the parts of the saddle, including the skirt, fender, cantle, and fork.

Table 3

**Correct Responses for Knowledge Questions about Saddling a Horse**

<table>
<thead>
<tr>
<th>Knowledge question</th>
<th>Horseless</th>
<th></th>
<th>Traditional</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Identified the fork on a western saddle.</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>71</td>
</tr>
<tr>
<td>Identified the skirt on a western saddle.</td>
<td>2</td>
<td>50</td>
<td>6</td>
<td>86</td>
</tr>
<tr>
<td>Identified the fender on a western saddle.</td>
<td>2</td>
<td>50</td>
<td>7</td>
<td>100</td>
</tr>
<tr>
<td>Identified the horn on a western saddle.</td>
<td>4</td>
<td>100</td>
<td>7</td>
<td>100</td>
</tr>
<tr>
<td>Identified the cantle on a western saddle.</td>
<td>1</td>
<td>25</td>
<td>7</td>
<td>100</td>
</tr>
</tbody>
</table>

**Horsemanship.** Traditional horse participants displayed good mastery of knowledge in horsemanship questions (Table 4). Only one traditional horse participant
indicated the wrong definition for equitation, and two others misidentified a black and white illustration of a curry comb, from the 4-H handbook, as a sweat scraper. The horseless participants displayed moderate knowledge of horsemanship. None of the horsemanship questions received correct responses from all horseless participants.

Table 4

Correct Responses for Knowledge Questions about Horsemanship

<table>
<thead>
<tr>
<th>Knowledge question</th>
<th>Horseless</th>
<th></th>
<th></th>
<th>Traditional</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Choose a definition for equitation.</td>
<td>2</td>
<td>50</td>
<td></td>
<td>6</td>
<td>86</td>
<td></td>
</tr>
<tr>
<td>Horse riding equipment, like saddles or bridles, are called _____.</td>
<td>2</td>
<td>50</td>
<td></td>
<td>7</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Which of these is not considered a gait of the horse?</td>
<td>3</td>
<td>75</td>
<td></td>
<td>7</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Identify this piece of grooming equipment.</td>
<td>2</td>
<td>50</td>
<td></td>
<td>5</td>
<td>71</td>
<td></td>
</tr>
<tr>
<td>Which of these is the definition of a riding aid?</td>
<td>3</td>
<td>75</td>
<td></td>
<td>7</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

Summary

In this chapter, qualitative and quantitative results were reported and compared for growth in life skills and knowledge among horseless and traditional participants of Washington County’s 4-H horse program. The demographics of the participants were predominantly white, pre-teenage females with varied 4-H involvement. The majority of horseless participants had been involved in 4-H for two years or less, and the majority of traditional horse participants had been involved in 4-H for four or more years. Most participants described plans to attend college and pursue a career with horses or other animals. For horseless participants, financing was identified as the most common barrier preventing them from having access to a horse and participating in the traditional 4-H
horse program. Overall, life skill development of teamwork and personal safety were prevalent in both programs. Decision making was also common in both programs but was limited to choosing between two alternatives rather than from several alternatives. Similarly, most participants from both groups described having personal goals, but they lacked formal goal-setting experiences. Upon comparison, the traditional horse youth proved to have more opportunities or greater experiences of leadership, self-responsibility, goal-setting, and communication than the horseless youth. Roughly half of the participants in both groups experienced having concern for others in their program, but both programs lacked development of critical thinking and problem solving. As for horse knowledge, traditional horse participant scores were 15% to 40% better than horseless participants on the quiz. On the quiz, the horseless participants lacked the most knowledge on the parts of a western saddle and the horsemanship sections.
CHAPTER V
CONCLUSIONS AND RECOMMENDATIONS

This comparative case study was conducted to evaluate the development of life skills and horse knowledge gained in horseless participants as compared to traditional horse participants of the Washington County 4-H Horse Program. This study combined the theory of experiential learning with the 4-H targeting life skills model and focused on 10 life skills. Using a mixed-methods design, this study combined qualitative in-depth interviews with a quantitative knowledge quiz and a the 4-H Common Measures survey to collect data. Demographics of participants were described and the barriers which prevented horseless youth from participating in a traditional 4-H horse program were identified. This chapter outlined the interpretation of those findings and how they build upon previous research as well as recommendations for future research and for practice in Extension.

Conclusions

What Barriers Prevent Horseless Youth from Participating in Traditional 4-H Horse Programs?

“Money,” or financing, is the most common barrier preventing the horseless youth from having access to a horse and participating in the traditional 4-H horse program. This is consistent with the findings of Kurtzo et al. (2017) and Gill et al. (2010), where expense and lack of support were identified as two major barriers for membership in youth horse programs. Although, lack of parental support is not a barrier for
participants in this study, a few participants identify other barriers, such as zoning limitations or lack of appropriate “fencing” and “shelter” for a horse, the time commitment of caring for a horse while having other obligations such as school work or caring for other animals, and traveling from home to a stable. These barriers also align with the factors that limit or discourage Pennsylvania 4-H participation including the availability of resources (land, barn, etc.), location conducive to horses, and time constraints due to other extracurricular obligations (Gill et al., 2010).

What Life Skills Did Horseless and Traditional Horse Program Participants Develop?

Leadership. The Washington County 4-H Horse Guide of 2017 states that youth who participate in the 4-H horse program will build the life skill of leadership. It claims a horse project is the vehicle used to teach these skills in a fun way as youth learn experiences (Washington County Extension, 2017). Among all participants, only traditional horse participants ($n = 4$, 35%) share examples of participating in formal leadership roles in 4-H. This shows that leadership opportunities are somewhat common in the traditional horse clubs but are absent from the horseless horse club. The moderate number of leadership opportunities in this program is similar to previous studies that reported leadership was gained or influenced by participating in 4-H (Fitzpatrick et al., 2005; Fox et al., 2003). In Fox et al. (2003), only 46% of alumni respondents identified leadership as being primarily influenced by 4-H club involvement. Likewise, Anderson and Karr-Lilienthal (2011) found leadership was ranked as the sixth most-influenced among 13 life skill scenarios. Furthermore, Fitzpatrick et al. reported that leadership was
a less common theme in responses of recent alumni who were asked to describe life skills they learned in 4-H. Traditionally, 4-H clubs have youth-elected officers and regular meetings are held after school (Enfield, 2001). The lack of leadership development among this study’s participants is due to a limited number of official leadership positions in the traditional horse clubs (e.g., club president, vice president, or secretary). The horseless horse club in this study has no official leadership positions to fill, so this limits the participants’ ability to develop formal leadership skills.

Upon comparison, the traditional horse participants have greater leadership development than the horseless participants. This is consistent with previous findings where Slocum (2004) found that youth participating in nonriding activities (e.g., horse judging, horse bowl, hippology, horse demonstration, and horse public speaking) did not show greater leadership than youth participating in competitive riding activities.

Perhaps participants in this study do not recognize instances when they act as a leader informally. Hendricks (1998) stated the “qualities desired in a leader depend upon the situation in which leadership is needed” (p. 30). It is possible that these youth unknowingly practice leadership through age-appropriate actions, which are considered leadership qualities. Hendricks described age-appropriate leadership qualities for three age groups. The 9- to 11-year-olds contribute to group effort, help to set group goals, value diversity, and identify one’s own competencies. The 12- to 14-year-olds negotiate personal and group needs; begin to understand different leadership styles; use one’s own competencies; practice assertiveness; identify role models; and enjoy group membership, symbols, and regalia. Finally, 15- to 19-year-olds organize groups to accomplish a
purpose, recognize different ways to accomplish a task, choose appropriately between leadership styles, understand personal strengths, teach others new skills, and explore opportunities for adult leadership. Based on this information, horseless participants in this program demonstrate a couple of age-appropriate leadership qualities by contributing to group effort and identifying their own talents. Traditional horse participants demonstrate more age-appropriate leadership qualities in comparison by finding roles to use their skills, practicing assertiveness around horses, identifying role models like their mothers as leaders, organizing groups to accomplish a purpose, and teaching others new skills.

**Teamwork.** Both groups of participants demonstrate teamwork, which is not surprising because studies have shown teamwork is highly influenced by participation in 4-H (Fitzpatrick et al., 2005; Maass, 2004), especially livestock judging (Deaver & Probert, 2016). Live horse interaction is a common factor between the horseless and traditional horse participants who describe teamwork experiences. The three horseless participants who recalled practicing teamwork described the time they saddled a horse together, whilst three traditional horse participants recalled various acts of teamwork during their riding practices. Teamwork games are also a shared experience from both groups, as described by one participant from the horseless program and traditional horse program, respectively. These experiences of teamwork are expected, and these activities were also found in Arkansas 4-H horse camps, which show to improve teamwork in youth (Kurtzo et al., 2017).

Service projects are a type of teamwork activity shared by traditional horse but not horseless participants. Traditional horse participants are required to participate in
community service in Washington County. This is interesting because community service volunteering is one of the 35 skills from the targeting life skill model. One description of community service volunteering is “working as a team towards a common goal that serves the community” (Michigan State University Board of Trustees, 2016a). This cross-skill experience suggests that traditional horse participants experience teamwork more than the horseless participants.

**Self-responsibility.** Responsibility has been repeatedly perceived, among both youth and parents, as the number-one life skill gained from a 4-H or FFA livestock project (Boleman et al., 2004; Holmgren & Reid, 2007). Nearly all participants in this study suggest that caring for a horse is a good way to practice self-responsibility. This idea closely aligns with Cole’s (2005) theory that “by learning responsibility and respect for a 1,000-pound horse, youth will also learn responsibility for their own actions and self-respect” (p. 2). Based on this ideology, traditional horse participants develop self-responsibility more than the horseless participants because they regularly care for a horse or riding equipment in the 4-H horse program or at home. Horseless participants have little to no opportunities to practice horse care activities that develop self-responsibility during their time in the horseless horse club.

**Personal safety.** Personal safety is another prevalent skill in both horseless and traditional horse participants. This finding is consistent with previous research by Smith et al. (2006), where safety was the second highest horsemanship skill that youth in 4-H and non-4-H traditional horse programs were able to perform, second to “handling horses.” Furthermore, Washington County’s leader guide states that “safety must always
be the first consideration during horseless program activities” (Washington County, 2018, p. 5). Moreover, one of the outlined objectives in the Utah 4-H Horse Project handbook is to “encourage youth to increase knowledge of safety precautions to prevent injury to oneself, others, and their mounts” (p. 2). Practicing personal safety is a common theme among many horseless and traditional horse curriculums throughout the nation. In the Minnesota 4-H Horseless Horse Project Member Handbook (Minnesota State University 4-H, 2003), personal safety was emphasized by describing safety knots like the quick release knot, requiring safety attire like helmets, and safe behaviors around a horse like how to safely approach a horse, to speak softly and act calmly around a horse, and safe proximity when handling a horse. As expected, all of the participants in this study describe practicing personal safety by wearing safe attire (e.g., helmets, pants, and boots) and behaving appropriately around a horse (e.g., spatial awareness, speaking softly, and handling an unruly horse). This finding is similar to previous research, where participants increased their safety skills and knowledge around horses during a 2016 Arkansas 4-H Summer horse camp by participating in lessons, groundwork, group riding, and mock competitions (Kurtzo et al., 2017).

**Problem solving.** The traditional horse and horseless participants lack development of problem solving. Of all participants, only one traditional horse participant shares an experience of problem solving where the participant describes scheduling the 4-H club riding practice. Furthermore, some youth feel there are no problems to solve in 4-H. This is unusual because problem solving is often studied in 4-H life skill research. It was so prominently researched that Duerden and Witt (2011) listed
problem solving among 10 life skills identified by practitioners as most in need of measurement development because of the wide array in which it had been previously measured. A review of the literature showed that 4-H horse programs positively influence problem solving (Cole, 2005; Haas et al., 2015; Kurtzo et al., 2017; Prechter et al., 2016; Smith et al., 2006). Perhaps problem-solving opportunities are overlooked by the participants because they look to adult leaders to solve them. The fact that horseless participants meet for 1 hour 30 minutes once a month for six months can explain why problem solving is a life skill not developed because the curriculum topics do not enhance that life skill.

**Decision making.** The Washington County 4-H Horse Guide of 2017 states that youth who participate in the 4-H horse program would build the life skill of decision-making. Decision-making experiences are shared by several of the horseless and traditional horse participants ($n = 4$ horseless, $n = 5$ traditional), showing that decision making opportunities are often present in the horse program. Hendricks (1998) recommends that 5- to 8-year-olds “identify problems, choose among a few selected alternatives, and accept responsibility for consequences of personal actions” (p. 36) and 9- to 11-year-olds “gather information for improved decision making, develop opinions, and choose among several alternatives” (p. 36). Ages of horseless participants in this study ranged from 10- to 13-years-old with a mean age of 11-years-old. Their decisions are whether or not to ride a horse ($n = 2$), to walk or to trot ($n = 2$), and to turn the horse left or right ($n = 1$). These decision-making experiences of the horseless participants are more appropriate for 5- to 8-year-olds. The decisions do not reflect an age-appropriate
level of decision making in which the participants would seek out information, develop their own opinions, and choose among several alternatives (Hendricks, 1998). This shows room for developing decision-making opportunities in this horseless horse program.

The traditional horse participants are older and have more advanced decision-making experiences. Hendricks (1998) recommended that 12- to 14-year-olds “classify information for use, compare and choose among several alternatives, and begin to make personal decisions based on forethought” (p. 36). Children of 15- to 19-year-olds “specify goals and constraints, consider risks, generate and evaluate alternatives, apply personal values criteria to choices, and take freedom from parental control to make decisions” (p. 36). Traditional horse participants were ages 11- to 16-years-old with a mean age of 13-years-old. Their decisions are more advanced than the horseless participants: whether or not to sell their horse with the help of a family member ($n = 2$), whether or not to participate in a 4-H horse event/program ($n = 2$), whether to feed alfalfa or grass with the help of a family member ($n = 2$), which of two horses to ride in 4-H practice ($n = 1$), and whether or not to accompany a parent when taking a horse to the vet to be euthanized ($n = 1$). While these experiences lack the opportunity to choose among several alternatives, they demonstrate some advanced decision-making themes of making decisions based on forethought, considering risks, generating alternatives, and applying personal values to choices (Hendricks, 1998). Although decision-making opportunities are present for both types of participants, the traditional horse participants have more meaningful decision-making development opportunities than the horseless participants do.

**Critical thinking.** The traditional horse and horseless programs lack development
of critical thinking. Of all participants, only one traditional horse participant understands the definition of critical thinking and describes how to incorporate critical thinking when handling horses. This is unusual because critical thinking is often studied in 4-H life skill research. Duerden and Witt (2011) listed critical thinking among 10 life skills identified by practitioners as most in need of measurement development because of the broad number of ways in which it had been measured by various studies. A review of the literature showed that 4-H horse programs positively influence critical thinking (Cole, 2005; Haas et al., 2015; Kurtzo et al., 2017; Maass, 2004; Prechter et al., 2016; Smith et al., 2006). The Extension educator revealed that critical thinking should happen in the Washington County Horse Program (B. Scow, personal communication, January 19, 2019). Perhaps the volunteer leaders of Washington County lack sufficient training to properly encourage and develop this life skill in the participants. Moreover, the curriculum topics might not address critical thinking during the meeting time.

Goal setting. Most participants describe having personal, ongoing goals in the horse program (n = 2 horseless, n = 6 traditional). These personal goals all involve developing or improving horseback riding skills over time. This finding is slightly different from previous research where goal setting was positively influenced by nonriding horse 4-H activities like horse bowl, demonstrations, public speaking, and art (Anderson & Karr-Lilienthal, 2011). However, this does not mean that both riding and nonriding activities develop goal setting in the same way or to the same degree. The type of goal setting experiences shared by the majority of this study’s participants are different than those of the Anderson and Karr-Lilienthal participants. The participants in this study
share ongoing personal goals but have no formal process for completing the goals. In contrast, the nonriding activities described in Anderson and Karr-Lilienthal likely involved tracking the progress of goals in a 4-H record book, as is usually required of traditional 4-H horse projects. When developing the goal setting skill, it is important to develop an action plan with necessary steps to achieve the goal within a certain time frame. Hendricks (1998) outlined six steps to achieving a goal, from identifying an appropriate goal to revising the plan if the intended goal was not met. In this study, only one traditional horse participant describes this sort of formal goal-setting experience where a club’s specific fundraising goal is met by offering pony rides to people at the local fair. Overall, most participants in this study lack any formal goal setting process, such as Hendricks’ six goal-setting steps. Furthermore, two of the four horseless participants do not share experiences with goal setting. The goal setting process is different because the horseless participants meet for about 1 hour 30 minutes for 6 months, and they do not continue lessons outside of the setting, which provides fewer goal setting development opportunities than the traditional horse participants.

Communication. The Washington County 4-H Horse Guide of 2017 states that youth participants would learn communication as a life skill. It appears that this life skill is achieved by most of the participants who practice verbal communication in the horse program (n = 2 horseless, n = 7 traditional). It is noteworthy that the horseless participants identify several ways to nonverbally communicate with horses and humans. In contrast, traditional horse participants provide more examples of how they communicated verbally rather than nonverbally. This finding may be because traditional
horse participants had public speaking and demonstration opportunities that horseless participants did not have. This finding supports previous research with a similar demographic, reporting that increased levels of 4-H involvement significantly affects growth in communication skills, especially among older, female 4-H youth participants and alumni (Fitzpatrick et al., 2005; Haas et al., 2015).

**Concern for others.** Roughly half of the participants in both groups experience concern for others in their program. This moderate number of incidences in which participants use this skill simply adds to the limited literature available. Kurtzo et al. (2017) reported that nearly all of the participants agreed “increased concern for others” was a benefit of participating in the Arkansas 4-H summer horse camp. In contrast, concern for others only ranked 25 out of 36 influential life skills that alumni participants gained in 4-H (Maass, 2004).

**What Knowledge Did Horseless and Traditional Horse Program Participants Gain in Regard to Horses, Horse Care, and Understanding the Responsibilities of Horse Ownership?**

Traditional horse participants score 15% to 40% better than horseless participants on the horse knowledge quiz. The greater horse knowledge of traditional horse participants can relate to their number of years in 4-H. The majority of traditional participants have been in 4-H twice as long as most of the horseless participants, who have two or fewer years of 4-H experience. This is consistent with the findings of Nadeau et al. (2007) where traditional horse participants with three or more years of 4-H experience scored higher than traditional horse participants with two or fewer years of
experience.

Breeds and coat colors is the quiz section with the highest percentage of correct scores for both horseless and traditional horse participants. Similarly, Nadeau et al. (2007) reported that the categories of breeds, coat colors and markings were among the highest mean scores for horse knowledge from 281 New England traditional horse participants over the course of 3 years.

Previous literature suggests that nonriding activities lead to gains in knowledge. For example, involvement in 4-H nonriding horse activities, like demonstrations, public speaking, horse bowl, and art have increased knowledge of horsemanship skills (Anderson & Karr-Lilienthal, 2011). Furthermore, nonriding workshops and clinics also created growth in knowledge of horsemanship skills (Capeheart, 2015). However, results in this study show that knowledge of horsemanship and parts of a saddle are most in-need of improvement based on somewhat lower test scores of both horseless and traditional horse participants. Scores on the test section that identified parts of a saddle may have been lower because of an error when the quiz was printed. The researcher corrected the error by hand on each quiz. Despite this, the need for horse knowledge development is greater for horseless participants than traditional horse participants because traditional participants all score 90% or higher on the quiz. The horseless participants in this study do not participate in demonstrations, horse bowl, or art activities, which can explain their lower horsemanship knowledge. Their lower quiz scores can indicate poor retention of horse knowledge because the study was conducted 10 months after these participants completed the horseless horse program.
Recommendations for Research

The results from this study provide insight into the traditional and horseless participants’ horse knowledge and life skills gained from participation in their horse program in Washington County, Utah. It is recommended that observational research be conducted at their club meetings, activities, and riding practices to document the life skills practiced rather than relying only on self-reported data from the participants. Future research should conduct in-depth interviews with the Extension educator and horse program volunteers in the county to detail life skills taught in their programs, as well as curriculum use, consistency of attendance and program exposure, focus of curriculum lessons, and learning objectives of the curriculum lessons. It is also recommended that future research implements a quasi-experimental design in which mediator and moderator variables are evaluated to compare the influence of 4-H leaders and volunteer training on the development in life skills and knowledge in youth participants. This research should also consider the variables of participant’s age, duration of club meetings, duration of the program’s season, and influence of parents when comparing development of life skills and knowledge in participants of horseless and traditional horse programs. The development of state and county level horseless horse manuals would better guide the programs and its leaders and volunteers. If Washington County adopts or creates a horseless horse curriculum, the Extension agent should collect both pre and post programming evaluation data to track the growth of life skills and horse knowledge. This would help create a statewide synopsis of the knowledge and life skills gained in participants of 4-H horseless horse programs. Using this holistic approach to research
would provide accountability and stakeholder involvement for the county 4-H horse program, which an increasing number of state Extension programs are challenged to report.

In terms of theory, many studies have investigated on life skills development of youth in 4-H, but limited research has applied the targeting life skills model to measure its 35 life skills. The targeting life skills model is incorporated in 4-H programming all over the nation, including Utah. As this model continues to gain prevalence in 4-H programming and curriculum, future research should continue to use theoretical frameworks involving the Hendricks’s (1998) targeting life skills model.

Certain life skills need more investigation than others in order to have well-rounded literature. In this study, concern for others was a skill chosen for evaluation from the caring subcategory, but the results in this study neither aligned with nor contrasted previous research. Concern for others and other skills in the caring subcategory have been almost entirely ignored by previous researchers evaluating life skills development in 4-H horse programming. Future research should consider whether or not the skill is present in 4-H horse program curriculum, if it is developed in participants of 4-H horseless and traditional horse programs, and what activities contribute to development of concern for others. Needs assessments should be conducted in the state to determine which of the 35 targeting life skills are most relevant to the Utah 4-H horse program and should be included as target outcomes in curriculum development and program evaluation.
Recommendations for Practice

The Washington County 4-H Program should create or adopt a horseless horse manual for members. Examples of 4-H horseless horse manuals exist in states in all regions of the nation, including Colorado, Kansas, Kentucky, Minnesota, Montana, Nevada, Ohio, Pennsylvania, Virginia, Washington, and Wisconsin. These manuals cover similar curriculum topics as the horseless Horse Lovers Club meetings in Washington County, Utah. Many of those states’ curriculums were designed for junior, intermediate, and senior members and expand the topics to address nutrition, care, teeth, bones, reproduction, diseases, health care, and pasture management. These curriculums need empirical evaluation for their efficiency in developing life skills and knowledge in participants. Moreover, Washington County’s horseless horse program needs regular meetings during the school year from September to June. If horseless participants meet the same number of times per month as traditional participants, the horseless participants would learn more about horses and gain more life skill experiences. Additionally, the first meeting should organize the meetings and project plans and elect officers to be similar to the traditional horse clubs in Washington County. Slocum (2004) found that the longer the tenure in 4-H and the more hours devoted to 4-H, the higher the level of youth participation in 4-H leadership activities, and thus the greater the level of leadership life skills gained by the youth.

Involving horseless participants in the same unmounted club activities (e.g., community service projects, demonstrations, and horse public speaking) as traditional participants, might increase the quantity and quality of their life skills development. An
understandable lack of excitement is involved in a community service project where youth are cleaning up trash after a rodeo as opposed to tacking up a live horse with club peers. Increasing attendance to these life-skill development opportunities involves creating meaningful incentives for horseless youth to encourage them to show up to meetings and participate in these activities. Examples of meaningful incentives could be a point system (similar to the competitive riding pointing-up system found in traditional horse programming) that rewards time spent at meetings or on nonriding projects, emphasis on learning experientially through life-skill-building games, or any activity involving interaction with a live horse.

Barriers to horse ownership will always exist, thereby preventing horseless youth from participating in traditional horse programs. However, by identifying the barriers and considering them when developing horseless horse curriculum, horseless participants can have similar opportunities for life-skill development as the traditional horse participants. Upon comparison, the traditional horse participants had more opportunities with horses, which helped them develop leadership, self-responsibility, goal-setting, and communication skills more than the horseless participants.

The researcher provided suggestions to improve or enhance nine of the 10 life skills evaluated in this study: leadership, teamwork, self-responsibility, problem solving, decision making, critical thinking, goal setting, communication, and concern for others. To strengthen leadership skills, horseless clubs need to elect officers and recognize official youth leadership roles. For teamwork development, horseless participants are invited to the same community service projects as traditional horse participants. For
greater self-responsibility development, horseless participants need opportunities to practice horse care. One suggestion is to arrange for horseless youth to act as stable hands for a day by cleaning stalls and watering horses at a local facility or riding event. To strengthen problem solving experiences among both traditional and horseless participants, the volunteer leaders would present more small challenges (like coordinating riding practice or meeting times) to the participants. Michigan State University Extension (2016b) suggested two activities for 4-H members to learn problem solving: assess the care and well-being of horses on a farm and role play ways to resolve conflict in a club or group setting. Decision making opportunities for participants in these age groups can improve for both traditional and horseless participants by presenting them with decisions that have several alternatives rather than just two. Michigan State University Extension (2016b) suggested two activities: (a) youth could be presented with an age-appropriate number of alternatives on how to reach a goal and decide on one alternative and (b) they could role play in club settings on decision-making activities related to horse ownership. Critical thinking development would improve by educating both traditional and horseless participants on what it means to think critically and challenging them to do so, according to what can be comprehended by their age. Hendricks (1998) suggested 9- to 11-year-olds have the capacity to consider more information and develop wider comprehension; 12- to 14-year-olds can examine various points of view and are able to reason, compare, and analyze information to discover deeper meanings, and 15- to 19-year-olds can discover the principles underlying relationships between two or more things and apply them. This highlights the importance of involving a variety of industry professionals in
the program, so the younger participants develop wider comprehension of topics taught and older participants draw connections between the various experiences with them. For 15- to 19-year-old participants, 4-H leaders can emphasize the qualities of critical thinking by encouraging them to discover meaning or understand the “whys” behind what they are being taught and to draw connections with past learning. For example, if a traditional horse participant is taught to “cluck” to a horse to cue a trot and to “kiss” to cue a canter, they should also be taught why it is important to assign certain cues to certain behaviors, so horses differentiate more clearly what is being asked of them. The results of this study suggest that 4-H leaders need training on how to better develop decision making, problem solving, and critical thinking skills in youth. Goal setting could improve for both horseless and traditional horse participants by enforcing that the club members set at least one goal and plan steps to reach that goal. Older members could set long-term goals and implement the steps for achieving those goals. Hendricks outlined six steps to making, accomplishing, and evaluating goals. Updating 4-H record books are a great way to develop goal setting and track progress. 4-H record books have been shown to increase goal setting development (Diem & Devitt, 2003). Verbal communication experiences could improve for horseless participants by encouraging them to give a demonstration or talk as traditional horse participants do. Finally, horseless and traditional horse participants can practice concern for others by being intentional about caring and showing concern for their peers and animals while interacting at club meetings.
Summary

Extension educators can use the findings of this study to develop and improve horseless horse programs and traditional horse programs that emphasize life-skill development and knowledge in youth. At least one traditional horse participant described a development experience in all 10 life skills evaluated in this study. Horseless participants did not demonstrate the same level of life skill development opportunities. By “leveling the field” between horseless and traditional horse participants, horseless youth may have more opportunities to increase life skills development as the traditional horse participants do. These findings contribute to Extension’s efforts of improving accountability for producing desired program outcomes that allow Extension to continue to grow and serve the community.
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Appendix A

Questioning Guide for Interviews
I am interested in your experiences with 4-H horse programming in Washington County. I would like to learn specifically about your growth in life skills as a result of participating in either the horseless or the traditional 4-H horse program. Now, I will start the audio recorder to capture our conversation, so I can remember what we discussed later.

Do you borrow, lease, or own a horse?
   PROBE: If you do not have access to a horse, what are the barriers that prevent you from having a horse?

I want to know about life skills you learned through participation in your 4-H horse program. Life skills are abilities someone can learn to help them be successful in living a productive and satisfying life. Examples of these skills are leadership, teamwork, self-responsibility, and personal safety. The life skills you learned may be different to the examples we have provided. There are no right or wrong answers. I am interested in your own experience.

1. How did the horse program teach leadership?
2. Tell me about how the horse program helped you learn teamwork?
3. How did the horse program teach you about self-responsibility?
4. How did you learn about personal safety in the horse program?
5. Tell me about your experiences of problem solving in the horse program?
6. How did you learn about decision making in the horse program?
7. How did the horse program teach you about critical thinking?
8. Tell me about your experiences of learning goal setting in the horse program?
9. How did you learn about communication in the horse program?
10. How did the horse program teach you about having concern for others?

Possible probing questions:
   1. Can you give me an example?
   2. Can you explain that a little more?
   3. How did you feel about that experience?
   4. How did you go about it?
   5. Why is that important?

Other Questions
11. What other skills did you gain from being in a 4-H horse club?
12. What 4-H horse program activity did you learn the most from?
13. What are your future plans?
   a. PROBE: college, professional school, high school, go straight into the work force, or are you undecided.
   b. PROBE: would you like to pursue a horse industry career?
This concludes our interview. Thank you for answering my questions.
Appendix B

Horse Knowledge Quiz
Horse Knowledge Quiz

This quiz is intended to test your knowledge of horses gained from participating in a 4-H horse program. For multiple choice questions, please circle a letter of the best answer. Every question has only one answer.

Section 1: Breeds and Coat Colors

1. A golden horse with a white mane and tail is called a ____________.
   a. Chestnut
   b. Bay
   c. Palomino
   d. Buckskin

2. What horse breed always has a pinto coat pattern?
   a. Thoroughbred
   b. Paint
   c. Arabian
   d. Belgian Draft

3. Which of these is a real horse breed?
   a. Quarter Horse
   b. Penny Horse
   c. Dime Horse
   d. Nickel Horse

4. What is the name of a white spot marking on the forehead?
   a. Star
   b. Stripe
   c. Snip
   d. Blaze
5. What is the name of this white marking on the leg?

![Image of a horse leg with a white marking]

a. Coronet  
b. Pastern  
c. Ergot  
d. Sock/Half Stocking

**Section 2: Farrier Care**

6. Someone who trims and shoes horse hooves is called a _____________.

a. Jockey  
b. Veterinarian  
c. Breeder  
d. Farrier

7. This part of the hoof is called the _____________.

![Image of the hoof with a marked part]

a. Bars  
b. Frog  
c. Wall  
d. Sole

8. What does it mean when a horse is *lame*?

a. The horse has a bad attitude when being ridden.  
b. The horse has white hooves on all four legs.  
c. The horse is unable to walk normally because of an injury or illness.  
d. The horse is young and/or inexperienced under saddle.
9. The tool used to clean dirt from the inside of a horse’s hoof is called a ________.
   a. Hoof Pick
   b. Rasp
   c. Nipper
   d. Curry comb

10. True/False: Horse hooves grow continually.
   a. True
   b. False

Section 3: Saddling a Horse

For questions 11 through 15, identify these parts of a western saddle by filling in the blank.

Section 4: Horsemanship

16. Choose a definition for *equitation*:
   a. The art of riding horseback.
   b. The art of horse illustration.
   c. The art of working on horse’s hooves.
   d. The art of grooming a horse.

17. Horse riding equipment, like saddles or bridles, are called ________________.
   a. Toys
   b. Stock
   c. Tack
   d. Props
18. Which of these is not considered a gait of the horse?

   a. Jog  
   b. Lope  
   c. Gallop  
   d. Skip

19. Identify this piece of grooming equipment.

   a. Soft brush  
   b. Curry comb  
   c. Sweat scraper  
   d. Hoof boot

20. Which of these is the definition of a riding aid?

   a. Holding to the saddle with hands while riding a bucking horse.  
   b. Seatless overalls made of leather and sometimes fur covered for protection.  
   c. The eight feet of distance between horses in a column.  
   d. The legs, hands, weight, and voice as used in controlling a horse.

This concludes the knowledge quiz. Thank you.
Appendix C

Recruitment Scripts
Telephone Recruitment Script

Good <<MORNING/AFTERNOON>>. May I please speak with <<NAME OF PARENT>>?

My name is Haley Johnson, and I am a graduate student at Utah State University. I’m doing my thesis research on Washington county’s 4-H horse programs. Ben Scow gave me your contact information. I am interested in interviewing your child about <<HIS/HER>> experience of developing life skills and horse knowledge in Washington County’s 4-H horse program. At the interview, <<HE/SHE>> will receive two rodeo tickets as a thank you for participating. Is this a convenient time to give you additional information about the research project?

(If no) Is there a better time I could talk with you about the research project?

(If yes) We will use this information to develop better horse and horseless horse programs in Washington County and other counties throughout Utah. The interview would last about 30 to 45 minutes and would be arranged at a time convenient for you. The interview will be conducted face-to-face with your child. You are welcome to join the room with your child for the interview. With your permission, the interview will be audio recorded to facilitate collection of information, and later transcribed for analysis. Your child will also be asked to fill out a short, 4-H approved demographic survey and a horse knowledge quiz which will be used to measure knowledge gained from participating in the horse program. All information your child provides will be considered confidential. Your child’s name will not be connected to any of <<HIS/HER>> comments. Before the interview, you will read the informed consent information and will ask you whether you agree to allow your child to participate in the study.

Is your child available for this interview?

(If yes) I am conducting the research in Hurricane on <<DATE>> at the county Extension office. When would it be a convenient time to meet and interview your child?

Thank you very much for your time. Once again, if you have any questions or concerns, please do not hesitate to contact myself at haley.mac@aggiemail.usu.edu or call 208-602-5518.

(If no) Thank you very much for your time today. I appreciate you giving me a chance to explain the study, and I hope you have a nice day.

Goodbye.
If Leaving Message on Voicemail

Hello, this message is for <<PARENT NAME>>. It is <<DATE>> at <<TIME>> My name is Haley Macdonald Johnson, and I am a graduate student at Utah State University. My thesis research is evaluating Washington county’s 4-H horse programs. I am requesting your child’s participation in my research, which consists of a 30-minute interview to learn more about your child’s life skills and horse knowledge gained from participating in the Washington County horse program, a demographics survey, and a short horse knowledge quiz. If you choose to allow your child to participate in this research, your child will receive two rodeo tickets as a thank you from us. The information gathered will be used to develop better horse and horseless horse programs in Washington County and other counties throughout Utah. The interviews will be on [date] at the county Extension office. Please call me back at 208-602-5518 to let me know if you are interested in your child participating or not. I hope to hear from you soon. Thank you.

If the potential research participant calls back, proceed with the following

Thank you for calling me back. Would you be interested in participating in this research study about Washington County’s horse programs, being conducted by Utah State University Extension? If so, your child would participate in a voluntary face-to-face interview that will take about 30 minutes, a short demographic survey, and a short horse knowledge quiz. Would you be willing to allow your child to participate?

(If yes) Great! I am conducting the research at the county Extension office on <<DATE>>. When would it be a convenient time to meet and interview your child?

(If no) Thank you very much for your time today. I appreciate you giving me a chance to explain the study, and I hope you have a nice day. Goodbye.

E-mail Reminder for Interview Participants

(To be sent a few days prior to the interview)

Dear <<NAME>>,

Thank you for confirming your child’s participation in a face-to-face interview concerning their experience in Washington County’s horse programs. I look forward to meeting with you and them on <<DATE>> at <<TIME>> at the Washington County Extension Office. The address is 339 S 5500 W Hurricane, UT 84737. We will be meeting in <<ROOM #>>. Thank you for your participation. We value your input! Please call me at 208-602-5518 or email me at haley.mac@aggiemail.usu.edu if you should have any questions or concerns.

Sincerely,
Haley M. Johnson
Appendix D

Informed Consent Form
A Case Study Comparing the Life Skills Development and Knowledge in Youth Participants of Horseless and Traditional Horse Programs in Utah

Introduction
Your child is invited to participate in a research study conducted by Dr. Kelsey Hall, an associate professor, and Haley Johnson, graduate student investigator, in the School of Applied Sciences, Technology, and Education at Utah State University. The purpose of this research is to evaluate the life skills development and horse knowledge gained by youth belonging to a 4-H horseless horse program as compared to that of a traditional 4-H horse program in Washington County. Your child’s participation is entirely voluntary.

This form includes detailed information on the research to help you decide whether to allow participation. Please read it carefully and ask any questions you have before you agree to let your child participate.

Procedures
Your child’s participation will involve taking a 20-item quiz about horse breeds and coat colors, farrier care, saddling a horse, and horsemanship. In addition, your child will participate in a 30- to 45-minute face-to-face interview to learn about their experience in developing life skills and horse knowledge by participating in Washington County’s 4-H horse program. Your child’s total participation in this project is expected to be 60 minutes. We anticipate that 15 people will participate in this research study.

Risks
This is a minimal risk research study. That means that the risks of participating are no more likely or serious than those your child encounters in everyday activities. The foreseeable risk includes the loss of confidentiality. In order to minimize this risk, the researchers will not ask for participants’ names on the quiz and will analyze the data as a group to avoid identifying individual participants. If your child has a bad research-related experience, please contact the PI of this study right away at 435-797-3289 or kelsey.hall@usu.edu.

Benefits
As a benefit from participating in this study, your child will be offered two rodeo tickets at the conclusion of their participation. Please also be aware that your child’s participation helps us learn more about the life skills development and horse knowledge gained from participants in Washington County’s 4-H horse program, thus aiding in an effort to continually improve these programs.

Confidentiality
The researchers will make every effort to ensure that the information about your child in this study remains confidential. Your child’s identity will not be revealed in any publications, presentations, or reports resulting from this research study.

We will collect your child’s information through an audio recording of the face-to-face interview and a paper version of the horse knowledge quiz. The audio recording will be destroyed after transcribing the interview, which is expected to be done by July 2019. The paper horse knowledge quiz will be kept in a locked file cabinet in the principal investigator’s locked office until the responses are recorded in a data analysis program which is expected to be done by July 2019. The interview transcripts and quiz data will be securely stored in a restricted-access folder on Box.com, an encrypted, cloud-based storage system. This form will be kept for three years after the study is complete, and then it will be destroyed.

It is unlikely, but possible, that others (Utah State University or state or federal officials) may require us to share the information your child gives us from the study to ensure that the research was conducted safely and
appropriately. We will only share your family's information if law or policy requires us to do so. If the researchers learn about suspected abuse/neglect of a vulnerable individual, state law requires that the researchers report this suspicion to the authorities.

Voluntary Participation & Withdrawal
Your child’s participation in this research is completely voluntary. If you agree to have your child participate now and change your mind later, you may withdraw your child at any time before the horse knowledge quiz and interview are conducted. Completely anonymous participation in the horse knowledge quiz cannot be withdrawn, as we will be unable to determine whose data is whose.

IRB Review
The Institutional Review Board (IRB) for the protection of human research participants at Utah State University has reviewed and approved this study. If you or your child has questions about the research study itself, please contact the Principal Investigator at 435-797-3289 or kelsey.hall@usu.edu. If you or your child has questions about your child’s rights or would simply like to speak with someone other than the research team about questions or concerns, please contact the IRB Director at (435) 797-0567 or irb@usu.edu.

Please replace this line with an electronic signature, if you would like. We will give you a final, approved pdf and you are also welcome to apply your signature at that time rather than now.

Kelsey Hall
Principal Investigator
(435) 797-3289; kelsey.hall@usu.edu

Haley Johnson
Graduate Student Investigator
(208) 602-5518; haley.mac@ageiemail.usu.edu

Permission to Participate
By signing below, you agree to allow your child to participate in this study. You indicate that you understand the risks and benefits of your child’s participation, and that you know what your child will be asked to do. You also agree that you have asked any questions you might have, and are clear on how to stop your family’s participation in the study if anyone would like. Please be sure to retain a copy of this form for your records.

_____________________________  _______________________________  ________________
Parent/Legal Guardian’s Signature  Parent/Legal Guardian’s Name, Printed  Date

_____________________________
Child’s Name, Printed
Youth Assent

We are doing a research study about your experience in Washington County’s 4-H horse program. Research studies help us learn more about people. If you would like to be a part of this research study, you will take a horse knowledge quiz and participate in a face-to-face interview about the life skills you have developed.

When the researchers do things like face-to-face interviews, the loss of confidentiality is possible. We will do everything we can to prevent that from happening, but we want you to know that there is still a chance that could happen.

Not everyone who is a part of a research study receives something good from it. However, in this study, you will receive two rodeo tickets as a thank you for your participation. Your participation will also help us learn more about people like you. We will tell other people about what we learned from doing this study with you and the others who participated in it, but we won’t tell anyone your name or that you were in the study.

If this sounds like something you would like to do, we will ask you to say that you understand what we talked about, and that you do want to participate. You do not have to be in this study if you do not want to be. If you decide to stop after we begin the face-to-face interview or horse knowledge quiz, that is okay, too. Just let us know. No one will be upset if you don’t want to do this, or change your mind later.

You can ask any questions you have, now or later. Your parents know about this research study, and they have said you can participate, if you want.

If you would like to be in this study, please sign your name and write the date.

________________________________________  __________________________
Name                                      Date