

UTILIZING MINIATURE HORSES AS AN ADJUNCT IN A THERAPEUTIC  
PROCESS WITH AT-RISK ADOLESCENT BOYS IN DETERMINING  
INCONGRUENT EMOTIONS

THESIS

Presented to the Graduate Council  
Of Texas State University-San Marcos  
In Partial Fulfillment  
Of the Requirements

For the Degree

Master of ARTS

By

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San Marcos, Texas  
May 2006

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2005

## DEDICATION

This thesis is dedicated in loving memory of Toby, the miniature horse who inspired Hearts & Hooves and taught me how miniature horses can clip clop into the heart of therapy.

## ACKNOWLEDGEMENTS

To Stella Kerl, Ph.D. Thank you for agreeing to take on and chair this project and for your never-ending guidance, encouragement, support and keeping me grounded throughout the entire process. You have helped me grow both personally and professionally, and I am forever grateful.

To Colleen Connolly, Ph.D. Thank you for believing in me and caring enough to make an exception and take on this project. Your encouragement and guidance meant so much to me.

To Larry Price, Ph.D. Thank you so much for your patience and taking the time to help me understand those things in which my brain does not always easily grasp. Your involvement meant so much to me.

To John Garcia, Ed.D. Thank you for your guidance on the Jungian horse archetypes and for taking an interest in this project. Your feedback meant so much to me.

To Veronique Matthews thank you for welcoming me into your organization and for encouraging me to conduct this project. You were the first to show me the magic of horses, and your generosity, support, and friendship have changed me forever.

To my husband Shawn, my parents, and friends, (especially Nikki Harder and Laura Kahanek) who have been there, thank you for supporting me and giving me the strength I need to complete my goals. Your support is a gift I am grateful for every day.

And last, but not least, thank you to all of the four-legged friends in my life who have taught me so much.

This manuscript was submitted on November 7, 2005

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## CHAPTER I

### INTRODUCTION

#### Background of the Problem

Creative approaches to therapy have become increasingly popular over the past three decades (Huang & Dodder, 2002). Before that creativity was not common, in fact, the word *creativity* was not even in many English dictionaries until about a hundred years ago (Blatner, 2000). Traditional talk therapy is highly effective, though expanding into more innovative approaches to address problems is becoming a significant characteristic in modern counseling. Integrating creative techniques is not new; individuals such as Carl Rogers, Fritz Perls, Albert Ellis (Murray & Rotter, 2002), Jacob Moreno (Blatner, 2000) and many others developed creative and unique techniques for counseling (Murray & Rotter, 2002). Animals utilized as an adjunct to therapy is a creative approach to therapy that may or may not include traditional talk therapy as a component.

When animals are utilized in therapy that does not include traditional talk therapy according to Korlin, Nyback, and Goldberg (2000) nonverbal techniques are used to help clients access, give form to, and integrate experiences, memories, and emotions that cannot be directl

verbalized (Korlin et al., 2000). Some examples of other forms of nonverbal techniques are art therapy (Korlin et al., 2000; Ulman, 2001), active and receptive music therapy (Kanamori et al., 2001; Korlin et al., 2000), dance therapy (Korlin et al., 2000), psychodrama (Blatner, 2000; Blatner, 1996; Korlin et al., 2000), expressive arts therapy (Korlin et al., 2000), and therapeutic writing (Wright & Cheung Chung, 2001).

Animals as an adjunct to therapy is a unique creative approach that can be done in many ways (Kovacs, Kis, Rozsa, & Rozsa, 2003). The utilization of animals in therapy is not merely a passing trend (Jenkins Missel, 2001).

### Problem Statement

As the power of the bond between animals and humans (Beck & Katcher, 2003) continues to be uncovered it is important for the mental health profession to find ways to harness this amazing adjunct to therapy. Horses have been shown to be beneficial to humans in therapeutic riding (American Hippotherapy Association [AHA], 2000). With that in mind, many of the studies show most of therapeutic effect has been unrelated to the actual riding, and related to activities taken place with the human horse interaction (Bizub, Joy, & Davidson, 2003; Burgon, 2003; Farias-Tomaszewski, Jenkins, & Keller, 2001; Grandin & Johnson, 2005; & Kaiser, Spence, Lavergne, & Vanden Bosch, 2004). Part of the problem is that the majority of the people doing AAA and AAT

are volunteers and few professionals are involved in and researching this field (Beck & Katcher, 2003). It is important for mental health professionals to research ways that animals, particularly horses can serve as an adjunct to the therapeutic process. This research will attempt to show another method of utilizing horses as an adjunct to therapy with miniature horses.

### Importance of the Research

Several authors report that horses are a mirror to the internal emotions of humans (Clay, 2004; Equine Assisted Growth and Learning Association [EAGALA], 2003; Kohanov, 2003, McCormick & McCormick, 1997). It is important to note that no research has been done attempting to find a correlation. Researchers have done studies showing the benefits of animals to humans (Allen, 2003; Bardill & Hutchinson, 1997; Barker, Pandurangi, & Best, 2003; Barker, Rasmussen, & Best, 2003; Baun & McCabe, 2003; Beck and Katcher, 2003; Brensing, Linke, & Todt, 2003; Brodie & Biley, 1999; Burgon, 2003; Connor & Miller; 2000; Hines, 2003; Fawcett & Gullone, 2001; Friedmann, Katcher, Lynch, & Thomas, 1980; Golin & Walsh, 1994; Heimlich, 2001; Irvine, 2004; Jenkins Missel, 2001; Johnson, Odendaal, & Meadows, 2002; Kaiser, Spence, McGavin, Strumble, & Keilman, 2002; Kanamori et al., 2001; Kovacs et al., 2003; Lloyd, 1997; Marr et al., 2000; Martin & Farnum, 2002; Melson, 2003; Miller & Ingram, 2000; Moody, King, & O'Rourke,

2002; Odendall, 2000; Peterson, 1999; Reichert, 1998; Renck Jalongo, Astorino, & Bomboy, 2004; Richeson, 2003; Serpell, 1999; Siegel, 1993), however, no research has been done attempting to make correlations between horse behaviors and their ability to communicate an internal state of a client. This paper will attempt to lay the groundwork to making these correlations.

### Definition of Terms

According to the Delta Society (1996) many different terms appear in research referring to the use of animals as an adjunct to therapy. Most of these terms can fall within two categories: Animal Assisted Therapy (AAT) and Animal Assisted Activities (AAA). The differences, while they may seem subtle, lie in their definition and function (Delta Society, 1996).

As defined by the Delta Society (1996),

AAT is a goal-directed intervention in which an animal meeting specific criteria is an integral part of the treatment process. AAT is delivered and/or directed by a health or human service provider working within the scope of his/her profession. AAT is designed to promote improvement in human physical, social, emotional, and/or cognitive functioning. AAT is provided in a variety of settings and may be group or individual in nature. This process is documented and evaluated. Specific treatment goals and

objectives are planned for each individual and progress is measured (p. 79).

As defined by the Delta Society (1996), AAA are:

Activities that involve animals visiting people. The same activity can be repeated with different people, unlike a therapy program that is tailored to a particular person or medical condition. AAA provide opportunities for motivational, educational, recreational, and/or therapeutic benefits to enhance quality of life. AAA are delivered in a variety of environments by specially trained professionals, paraprofessionals, and/or volunteers, in association with animals that meet specific criteria (p. 79).

Some terms apply specifically to horses. The term *hippotherapy* literally means treatment with the help of the horse derived from the Greek word, "hippos," meaning horse. According to the AHA (2000), the term hippotherapy implies that hippotherapy is a separate form of therapy, using the horse's movement as a modality or tool by specifically trained physical therapists, occupational therapists, psychotherapists, and speech and language pathologists (AHA, 2000).

Another term that applies specifically to horses is *therapeutic horseback riding*. Therapeutic horseback riding, according to the AHA (2000), is a term that has been used for many years to encompass a large variety of horse (*Equus Caballus*) related activities in which people with disabilities participate (AHA, 2000). Therapeutic riding is differentiated

from recreational riding and is used to describe rehabilitative uses of the horse and the aim is to somehow improve the life of the rider (Kaiser, Spence, Lavergne, et al., 2004). Therapeutic horseback riding is an umbrella term still commonly used today. However, this term cannot be applied to therapy utilizing the movement of the horse as a treatment tool to improve neuromuscular functioning, because that involves a more specific type of therapeutic horseback riding called hippotherapy (AHA, 2000).

Just as the standard of practice for AAA and AAT is structured to accommodate special needs of a client population and provide safe interactions between animals and people (Delta Society, 1996), equine assisted activities (EAA) also follow the same standards (North American Riding for the Handicapped Association [NARHA], 2004). EAA and AAA are essentially the same thing. The only difference is that equine specifies that horses will be utilized as an adjunct to therapy instead of another species (NARHA, 2004).

Equine Assisted Psychotherapy (EAP) is a goal directed, psychotherapeutic approach to therapy utilizing a horse as an adjunct to therapy. The research makes it difficult to separate EAP from therapeutic horseback riding. This is primarily because many of the programs in existence use riding as a means to facilitate a therapeutic effect. The term equine-facilitated therapy is also used to describe EAP, when the goals are the same, but a licensed mental health professional is

not involved. According to the EAGALA (2003), EAP is a powerful and effective therapeutic approach. EAGALA is a non-profit organization developed to address the need for resources, education, safety, ethics, and professionalism in the field of EAP (EAGALA, 2003).

Another important term used throughout this research is *incongruent emotions*. According to Kohanov (2003) incongruent emotions are the difference between who the person is pretending to be and who the person really is. It is proposed in this thesis that horses can pick up on these incongruent emotions. The goal of identifying the incongruent emotion is to help the client on their journey to become congruent. Banmen (2002) describes congruence as a state of internal and external harmony. It is a sense of calmness, wholeness, peace, and tranquility. Congruence provides the client with a sense of empowerment, which means that the individual is not controlled or triggered negatively by the outside world, but responds to the world from a state of internal harmony with one's deepest self, as well as with others and within the context of the situation (Banman, 2002).

*Communication* is an important term to understand and for the purpose of this study is defined as follows. According to Gabbott and Hogg (2000), communication consists of a signal sent by the sender, the means of transfer used for the information to be exchanged, and the message being received by the receiver, regardless of the species. Further, Gabbott and Hogg state that most communication occurs

between members of the same species; this is often referred to as intra-specific communication.

For the purpose of this study, *nonverbal communication* is defined as taking place every time one person interacts with another person or species (Gabbott & Hogg, 2000) without speaking. According to Gabbott and Hogg, (2000) nonverbal communication may be intentional or unintentional and is part of the rapid stream of communication that passes between two interacting individuals transcending the bare elements of the written or spoken word. It encompasses aspects of emotions and body language, including facial expression, eye contact, posture, gesture, and inter-personal distance. Since most of the information that the horse receives relies on nonverbal communication (the remaining being chemical scents), it is important to have an understanding of this style of communication. Research suggests that up to 90% of the communication between humans is transmitted nonverbally (Gabbott & Hogg, 2000).

A new term being introduced in this study is *Equine Resolution Mapping* (ERM). ERM is the process of communication done by observing body language of a horse while someone is holding the lead. This body language is then translated by the facilitator into words describing the inner state of the person holding the lead. It is proposed that the horse is able to mirror what the person holding the lead is feeling, and the horse will express with their body language what the

person needs to work on, and/or show the person how it feels to be them as the horse mirrors their behaviors.

## CHAPTER II

### REVIEW OF THE LITERATURE

According to the Delta Society (1996) many different terms appear in research and articles referring to the use of animals as an adjunct to therapy. Most of these terms can fall within two categories: *Animal Assisted Therapy* (AAT) and *Animal Assisted Activities* (AAA). The differences, while they may seem subtle, lie in their definition and function (Delta Society, 1996). Most studies appear to use the term AAT to encompass both types of activities (Barker, Pandurangi, et al., 2003). According to Janssen (1998), the term applied defines the premise behind utilizing animals as an adjunct to therapy and is based primarily on three fundamental principles: all people need to love and be loved, all people need to feel worthwhile, and pets can fulfill these needs. These animals are able to do this because of their ability to give friendship, and to give and receive unconditional love and affection without judgment (Janssen, 1998). Animals take part in making humans feel better by sharing unconditional love, and returning love, unconditionally (Jenkins Missel, 2001).

Animals, when utilized in therapy, can also enhance the therapeutic rapport and make the therapy situation more comfortable.

The animals in different types of therapy can serve as role models, social facilitators, and amplifiers of emotional reactivity (Delta Society, 1996; Kovacs et al., 2003). The term *animal* covers human and non-human species (Berry, 2004); please note, for the purpose of this study the term “animal” will refer to nonhuman species.

### Animal Assisted Therapy

AAT is also referred to as Animal Facilitated Therapy (Delta Society, 1996), and Pet Facilitated Therapy (Banks & Banks, 2002; Brodie & Biley, 1999; Delta Society, 1996). According to the Delta Society (1996) researchers and practitioners often use the terms interchangeably. Current research typically applies the term AAT as used by the Delta Society, a group that provides guidelines for practice with therapy animals. Since there is no standard definition of AAT, many organizations use the term more broadly than the Delta Society. It is the Delta Society that has stepped up and provided an organization that helps to define the proper terminology, certification guidelines, and direction for those interested in utilizing animals as an adjunct to therapy.

As defined by the Delta Society (1996):

AAT is a goal-directed intervention in which an animal meeting specific criteria is an integral part of the treatment process. AAT is delivered and/or directed by a health or human service provider

working within the scope of his/her profession. AAT is designed to promote improvement in human physical, social, emotional, and/or cognitive functioning. AAT is provided in a variety of settings and may be group or individual in nature. This process is documented and evaluated. Specific treatment goals and objectives are planned for each individual and progress is measured (p. 79).

When AAT is used in physical therapy, goals may include the improvement of fine motor skills, wheelchair skills, or the improvement of standing balance. In mental health programs, AAT may be used to increase verbal interactions, attention skills (Delta Society, 1996), and self-esteem (Delta Society, 1996; Strimple, 2003), or to reduce anxiety or loneliness. According to the Delta Society (1996), AAT animals can also be used in educational settings. For example, they can be used to improve knowledge of concepts such as size, color, etc., or to help motivate people to improve interactions with people through interactions with the animals. AAT has been described as an applied science, using animals to solve human problems (Gammonley, 1991). It has been used to combat loneliness and increase socialization (Banks & Banks, 2002).

The Delta Society (1996) states that in order for the work with the animal to be considered AAT, a formal process is involved and three characteristics are required. First, AAT is to be directed by a health/human services professional as a part of his or her practice. It

can be a physician, occupational therapist, physical therapist, teacher, nurse, social worker, speech therapist, mental health professional, etc. To meet the standards of practice the professional must handle the animal or the professional must be supervising if the handler is a volunteer. If the professional takes the therapy animal to another environment, the work would be considered AAA. For example, if a Licensed Professional Counselor (LPC) utilized a dog in his or her practice, taking the dog into an elementary school would be outside the scope of his or her practice. Second, AAT must always have specific goals in mind. The goals need to be identified and defined prior to the session. Lastly, AAT must be documented; each session is to be documented in the client record with the progress and activity noted (Delta Society, 1996).

AAT in psychology began with research by Levinson with a paper published in 1962 in *Mental Hygiene* called, "The Dog as a 'Co Therapist'" (Levinson, 1962). He found that adolescents who were typically uncommunicative interacted positively with a dog (Chandler, 2001; Heimlich, 2001). This actually came about on accident when he left his dog Jingles with a difficult to treat, uncommunicative child. When he returned the child was speaking to the dog (Phillips Parshall, 2003; Reichert, 1998). He discovered that he could reach children in therapy sessions and get them to open up when his dog, Jingles, was present (Chandler, 2001; Heimlich, 2001). The children were able to better

express their feelings when the dog was around (Banks & Banks, 2002). Levinson's research laid the groundwork for both professionals and lay people and brought the therapeutic possibilities of animals to the field of human service (Chandler, 2001; Heimlich, 2001). Levinson believed so much in the power of animals his later writings proposed that animals have played such an important role in human evolution, they have become an integral part of our psychological well-being (Burgon, 2003).

Though Levinson is considered the first by many, use of animals in therapy can be found before Levinson (Jenkins Missel, 2001). As early as the 1700's, psychiatric treatment centers began utilizing animals to help treat their patients (Bardill & Hutchinson, 1997). Sigmund Freud also recognized the benefits of animals with clients as he was reported to allow his chow-chow, Jo-fi, be present during therapy sessions (Jenkins Missel, 2001).

### Animal Assisted Activities

As defined by the Delta Society (1996), Animal Assisted Activities (AAA) are:

Activities that involve animals visiting people. The same activity can be repeated with different people, unlike a therapy program that is tailored to a particular person or medical condition. AAA provide opportunities for motivational, educational, recreational, and/or therapeutic benefits to enhance quality of life. AAA are

delivered in a variety of environments by specially trained professionals, paraprofessionals, and/or volunteers, in association with animals that meet specific criteria (p. 79).

Although AAA is the preferred term, this approach is sometimes referred to as *Therapy Pets*, *Visiting Pets* (Delta Society, 1996), *Pet Enhanced Therapy*, *Pet Assisted Therapy*, *Human/Companion Animal Bond*, *People-Pet Partnership*, *Pet Owner Interaction* or *Pets by Prescription*. Regardless of the name being applied to the interaction, they provide human/animal contact for a therapeutic purpose (Janssen, 1998). According to the Delta Society (1996) many organizations use the term *therapy pet* because there is a therapeutic benefit to the animal visits. It describes the purpose of the visit rather than the relationship between the pet and any particular individual. It often is not a strictly accurate use of the term therapy, but it is common usage. Many non-profit organizations use the term *pet therapy* instead of AAA. They may use AAT as well since no government laws regulate the terminology.

Further, AAA often consists of animals making generalized visits to convalescent homes, hospitals, youth facilities, etc. These animals are typically people's pets. The volunteers receive little or no training in therapeutic technique. No special training is required; AAA is a group of volunteers or an individual who take their pets on visits. Their role is to simply make life a little more pleasant for those in various treatment or residential facilities. People visited likely receive a therapeutic effect but

there are no specific treatment goals that need to be identified for an individual patient (Delta Society, 1996). Schwartz and Patonek (2002) found that it can be important to be aware of people's attitudes about animals prior to visits. For example, the researchers found that in their study African- and Asian-Americans have fewer companion animals and in a random poll of their participants found only one in twenty families had a dog in their home. This population typically had little exposure to dogs and experienced increased anxiety (Schwartz & Patronek, 2002).

Before any animal is utilized as an adjunct to therapy, they are bathed before the visit, have proof of current vaccinations, and are escorted in and out of the facility, are brought in a carrier or on a short leash, interact only with specified patients, and have a time limited visit. This helps ensure the safety of those being visited and helps the visit to be more enjoyable for everyone (Miller & Ingram, 2000; Renck Jalongo, et al., 2004).

### *Preferred Therapy Animals*

According to Chandler (2001) the presence of an animal has been found to lower anxiety and motivate clients to participate in therapy. The warmth and playfulness of animals, as well as their presence, can be comforting.

There are many different types of animals that participate in therapeutic ways. The most common animals that can be found

facilitating therapy are dogs and horses (Chandler, 2001). Trained therapy dogs are becoming an increasingly common sight in many educational and health care settings (Renck Jalongo et al., 2004). Less commonly utilized animals include cats, rabbits, birds, fish, hamsters, llamas (Chandler, 2001), ferrets, guinea pigs (Marr et al., 2000) and dolphins (Brensing et al., 2003). To date research has not delineated that a specific animal works best. Most of the available research focuses on dogs and horses with little mention of other types of animals.

No matter what type of animal is being utilized, the handler pays attention to the needs and care of the animal and the stress levels they are experiencing. The welfare of the animal is always monitored; this is an ethical issue when utilizing an animal as an adjunct to therapy.

Not every animal is well suited for a population. According to Heimlich (2001), animals and the human handler must be carefully matched. Further, this does not vary by type of animal but by the specific animal that is the adjunct. Some people are not suited to be around animals such as those with allergies to the animals and those who could hurt the animal if they are prone to seizures. Another consideration is those who have a history of aggression towards animals. The welfare of the animal remains a critical consideration. A client who poses a risk to the therapy animal will not be considered for interventions involving animals. If a client has a history of animal abuse,

the interaction will be carefully monitored, but is not necessarily grounds for exclusion (Heimlich, 2001).

It is important to ensure that the animal has had some type of obedience training. This training makes the visits safe if the animal is trained to not scratch or bite and will follow commands. Screening for temperament is done prior to utilizing any animal as a therapy animal. Regular evaluation and training is to be done in order to continue utilizing the animal. Volunteer handlers need to be educated in both the care of the animal and proper handling of the animal, as well as in patient confidentiality issues. The animals need to be current on vaccinations in order to protect the public and other animals (Miller & Connor, 2000).

#### *Benefits of AAT and AAA*

The benefits other than the medically measurable such as reduction in stress through the use of EEG (Brensing et al., 2003) are difficult to quantify. Researchers have attempted to describe and determine the benefits in their research. The review of literature below shows the benefits of animals as an adjunct to therapy with live-in dogs, in a hospital setting, in a residential treatment setting, with emotionally disturbed children, and with middle-aged schizophrenic patients.

### *Human-Animal Bond/Connection*

Humans and animals have a long history together. Animals have a great potential for benefiting and enriching peoples lives (Hines, 2003). Animals improve our lives in many ways (Kaiser et al., 2002). Melson (2003) found evidence that pet-owners derive emotional support from their pets. In a review of literature Hines (2003) found that it has only been within the last decade that people have been talking about the human animal bond. Research began in the mid-1970s in veterinary research literature, although it was not mainstream or well funded. Today the positive benefits of the human-animal connection are more accepted in the mainstream (Hines, 2003). An example of that acceptance in the mental health community is in the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders Fourth Edition Text Revision (2000), the official manual of mental disorder classification, where comments in the diagnostic features of stuttering state that "Stuttering is often absent during oral reading, singing, or talking to inanimate objects or to pets" (p. 67).

Another example of the lure of animals is that in the United States and Canada, more children and adults visit zoos than attend major professional sporting events combined (Fawcett & Gullone, 2001). Beck and Katcher (2003) found that even symbolic animals can help. For example, many police forces have teddy bears as part of their trauma kits. The bond between humans and animals can help children learn

how to nurture, and interactions between children and animals provide a chance for roles of caring for another (Beck & Katcher, 2003). According to Marr et al. (2000), animals significantly improve prosocial behaviors. The researchers found that clients that received AAT were found to socialize more often with others and would also smile more (Marr et al., 2000). Martin and Farnum (2002) also found an increase in smiling. The researchers further found that exposure to a therapy animal increased energy and lead to more playful moods (Martin & Farnum, 2002).

According to Serpell (1999), animals play an extraordinary role in the lives of children in Western society. For example, soft toys that resemble animals are a typical first gift to a newborn child. Another example is the recent Beanie Baby® collecting phase, by adults and children alike. Many fairytales, fantasies, fables, and storybooks contain animated caricatures of animals. Real animals also play an important role in Western society. Many people enjoy visiting zoos, aquariums, and natural history museums. A survey in 1981 by Salomon found that over 90% of children expressed they owned or desired to have a pet in their home (Serpell, 1999). Melson (2003) found that more than 70% of U.S. households with children have pets (Melson, 2003), and most people will own a pet at some point in their lives (Brodie & Biley, 1999). Fawcett and Gullone (2001) report that over 500 million pets live in households in the United States. According to Irvine (2004), humans and animals

have had a long history together and in modern society people often have dogs, cats or birds as household companions. These pets, according to Melson (2004), are dependent on human care for survival and optimal development. These companion animals provide humans the opportunity to learn about, practice, and become motivated to nurture another being. Brodie and Biley (1999) say that the attachment between humans and animal companions is friendly, affectionate, and companionable interaction. A human usually obtains a pet in order to simulate attachment responses found with humans (Brodie & Biley, 1999). Animals also provide a socially acceptable way to satisfy the human need to touch and be touched, which is not always available (Kaiser et al., 2002)

#### *AAT in a Live-In Setting*

Bardill and Hutchinson (1997) found that animals can have a calming effect on many troubled adolescents. In their study, they interviewed 30 teenagers in an adolescent psychiatric unit about their live-in cocker spaniel named Graham. The adolescents had been hospitalized due to acute or chronic mental problems.

Several themes came up for the adolescents in Bardill and Hutchinson's (1997) study. First, they felt that the addition of the cocker spaniel made the hospital feel more "home like." Second, the constant companionship of the dog provided a replacement for missing

relationships and emotions for some. Many of the adolescents reported that Graham was like a brother or sister and felt like Graham liked them. Trust for the staff was also increased since the perceptions of nurses and therapists with a pet or with Graham were considered friendly and less threatening. Therapists also were positively affected as they showed more openness to the adolescents when they were observed with Graham.

The third major theme that Bardill and Hutchinson (1997) uncovered was that Graham provided a living creature that was safe to listen to them. Many of the adolescents had learned that talking to others can be dangerous and bring the risk of criticism, rejection, evaluation, punishment, inattention, judgment, and unsolicited advice. In contrast, with Graham they felt, heard and experienced unconditional acceptance.

The fourth major theme depicted was Graham as a comforter: almost all of the adolescents had a story to tell of being comforted by the dogs presence when upset. They repeated that he just seemed to know when he was needed and by whom. He also provided a distracter when needed, and the adolescents reported that Graham was able to help them to forget about their problems for a while. His presence helped them to be in the present moment and give them a temporary break from their pain and anxieties.

The fifth major theme found was Graham as a catalyst for learning. Since Graham responded positively to upbeat and affectionate behaviors and avoided those who displayed negative behaviors such as teasing or rough play, he was able to teach the adolescents better ways of interacting with others. They also learned responsibility through caring for the dog. The adolescents learned how to identify Graham's needs for food, water, or walks. For many of them, this was their first experience in learning to care for another (Bardill & Hutchinson, 1997).

Heimlich (2001), set out to find a way to quantify the benefits of AAT at a residential treatment school for children with multiple disabilities. In her study, she used 14 subjects for the interventions and a black Labrador Retriever named Cody. Prior to the therapy sessions three staff members determined baseline behaviors of the children. These behaviors were based on four variables: attention span, physical movement, communication, and compliance. Each child had eight, 30 minute sessions over a period of eight weeks. The three staff members would complete a Measurement of Pet Intervention (MOPI), Direct Observation Form (DOF), the Teacher's Report Form (TRF) and a Child Behavior Checklist (CBC) during each session while Heimlich and Cody interacted with the child. During the first and last week, the Behavior Dimensions Rating Scale (BDRS) was also completed on the child. This data could not be generalized due to issues of inter-rater reliability. In spite of this, the data did suggest positive trends of the effectiveness of

the AAT with the children. In the end, this attempt at quantifying the effects failed to adequately quantify the effects of AAT. She suggests that anyone researching this field try to control the inter-rater reliability and have a strong administrative support staff as well as sufficient time for the animal to recover between sessions (Heimlich, 2001).

Another residential treatment facility discussed in research by Golin and Walsh (1994) in New York has been around since 1948. The original purpose was to raise animals and children together to help the children learn to connect with animals and begin to understand the value of a nurturing relationship. This facility takes in mostly inner-city youths who have experienced emotional loss and trauma, separation from loved ones, school failure, and an inability to make and maintain adequate social relationships. Some of them have been neglected and abused. This facility, according to Golin and Walsh (1994), is a last resort after foster care, special classes, and group homes have failed them. This program utilizes dogs, cats, horses, fish, goats, hamsters, rabbits, pigs, cows, and birds as adjuncts to therapy.

Further, this study suggests the animals were able to help the children to open up, and in time the children learned to build healthy relationships with peers and staff through the experience of making connections with the animals. The animals also facilitated the reduction of symptoms of hyperactivity and conduct disorder, which in turn increased the children's learning capability. Another benefit of the

program is the tactile stimuli. Many of the children in this facility were raised without the opportunity to hug and express physical closeness, which comes along with healthy development. The animals are able to provide the children what they have been missing out on without fear of rejection. As reported by the children, the animals give unconditional love and acceptance on a daily basis. The children also learn to stay calm in the classroom setting. They learn that when they act out, the dogs cause commotion and leave, and when they are calm the dogs will stay with them. Since the children want the animals to stay, they learned to remain calm and not act out in the classroom (Golin & Walsh, 1994).

Another treatment facility described by Lloyd (1997) utilizes a confined ranch setting for emotionally disturbed and delinquent boys. The boys were sent to the facility from the courts or other public agencies after several failed placements. They participate in wilderness therapy, which includes activities such as climbing and ropes courses as well as AAT. The comments from the boys as they leave treatment are positive, and they report improved quality of life. The boys report that the one-on-one time with horses helped break down emotional barriers and help them to develop attachment skills (Lloyd, 1997).

McCabe, Baun, Speich, and Agrawal (2002) researched at an Alzheimer's residential special care unit. The researchers wanted to see if a resident dog would help with problem behaviors of persons diagnosed

with Alzheimer's. The researchers used a within-participants repeated measure design utilizing a Nursing Home Behavior Problem Scale (NHBPS) and a blue heeler therapy dog adopted by the facility. The researchers found that the presence of the resident dog decreased the occurrence of behavioral disturbances during the daytime hours. However, they did not find a significant improvement during the evening hours (McCabe et al., 2002).

Richeson (2003) researched the effects of a therapeutic reaction intervention utilizing animal-assisted therapy on the agitated behaviors and social interactions of older adults with dementia. They used the Cohen-Mansfield Agitation Inventory and the Animal-Assisted Therapy Flow Sheet to find their results. The participants all resided in a nursing home and participated in AAT one hour daily for three weeks. The sessions included petting, feeding treats, talking to the dog(s), brushing the dog(s), reminiscing about past pets, and talking to the handler and staff. Richeson (2003) found that AAT showed statistically significant decreases in agitated behaviors and a statistically significant increase in social interaction with persons with dementia (Richeson, 2003).

#### *AAT In A Hospital Setting*

Connor and Miller (2000) looked at outcomes related to AAT teams who brought animals into the hospital when patients were not making progress. They found that caregivers can use AAT to reduce a patient's

loneliness, improve communication, foster trust, reduce the need for medication, detect seizures, enhance the quality of life, improve physical functioning, decrease stress and anxiety, and improve vital signs and motivation. They provide an example of a patient named Judy who was in a car accident in which her passenger was killed. She was severely depressed and often agitated with the nursing and therapy staff. They called in an AAT team who had a two-year-old golden retriever named "Tommy." Judy appeared overwhelmed with joy when meeting with Tommy. Over several sessions he was able to help her to improve her ability to sit up. She had an increase in balance and increased arm strength as a result of brushing Tommy. She also needed less medication for pain when she was "distracted" by the golden retriever. It was suggested that the need for less medication is due to the calming effect that Tommy had on Judy (Connor & Miller; 2000, Miller & Connor, 2000).

Another study done in a children's hospital by Kaminski, Pellino, and Wish (2002) provided AAT to children over five who required long-term hospitalization. The average age was nine. The researchers had two groups: the first group received child-life activities therapy and the other group received AAT. The children were given a mood inventory prior to each session and at the conclusion of each session consisted of 10 faces displaying moods such as sad, lonely, scared, and happy. They found both groups showed a mood increase after the therapies and the

AAT group showed a slightly higher significant experience than the other. The children in both groups were also videotaped. These videotapes were analyzed for behaviors displaying touching, making contact with others, and affect. The children in the AAT group showed significantly more touching as well as more positive affect than did the children in the child-life activities group.

At the end of the experiment, the participants were asked to make believe a child in the hospital can make three wishes. They were then asked what they think the three wishes would be. The majority of the responses from both groups were about owning or being with pets, not being sick, and being able to go home. The group that participated in the AAT had a higher rate of wishes surrounding pets than did the other group; however, both commented on pet wishes often. The findings in this study suggest that interventions that promote normalcy, such as utilizing AAT while a child is in an unfamiliar setting, like a hospital, would be beneficial if incorporated into a child's care. They also found that parents of the children in the AAT experiment were less likely to feel guilt when they were not able to be with the child since they knew they were getting the contact with the therapy animals (Kaminski et al., 2002).

Kanamori et al. (2001) researched the benefits of AAT in a hospital psychiatric day care program for elderly with senile dementia. They conducted six biweekly sessions with a therapy dog and elderly patients

with dementia. A behavior assessment was used to measure the effects of AAT. The researchers found the patients in the study showed an increase in emotion, voluntary activities, and concern for others. They also noted that the more sessions participants were exposed to, the more effective AAT was at reducing stress levels (Kanamori et al, 2001).

Miller and Ingram (2000) looked at the benefits of AAT with trained and certified therapy animals to reduce stress, motivate patients to have a positive attitude, and to reduce the need for pain medication in preoperative patients in a hospital. Mrs. S, a 68-year-old female who was scheduled for a surgical procedure, had told her family members she feared she would not survive the surgery. Miller and Ingram (2000) found her to be a good candidate for AAT intervention. Prior to using AAT, nursing staff had tried to encourage her to discuss her fears, but it did not appear to reduce her fears. They suggested AAT to her. Two dogs, Harley and Splotch, then visited her. When they were brought to her bedside she petted them and whispered to them for twenty minutes. After the visit, she appeared calm and had a restful night's sleep and an uneventful surgical procedure the next day. When asked about the intervention, Mrs. S stated, "Visiting with the therapy dogs the night before my surgery reminded me that I needed to get better to get home to take care of my own animals (Miller & Ingram, 2000, p. 478)."

Miller and Ingram (2000) also suggest that trained therapy animals offer diversions and relaxation that reading or watching television may

not achieve. For example, a family that was waiting for their father as he was undergoing surgery for lung cancer was distressed in a waiting area. They agreed to visit with Barney, a certified therapy dog, and his handler. The family petted and played with Barney. The interaction with Barney sparked happy memories of family pets, and soon they were laughing and telling stories as they recollected the happy memories. This interaction went on for several hours as they waited to hear about their father. Barney appeared to be able to decrease the stress on the family and improve the members' sense of well being while waiting for the news about their father. When it was over, the family expressed that they were very grateful to Barney and his handler for spending time with them and helping them through a very stressful occasion (Miller and Ingram, 2000).

Peterson (1999) discussed the story of the therapy dog named "Murphy" and a four-year-old girl named Megan, who was hospitalized for cerebral palsy. Megan had never taken a single step. She was, on the other hand, making progress with standing, sitting, and stretching when she was introduced to Murphy. The handler observed Megan about to give Murphy a treat. Murphy started backing up as the handler gave him hand signals to go back towards the girl. Just when the handler was about to intervene and bring the dog closer to the girl, Megan stood up and took her first step ever towards Murphy to give him the treat. This is only one story of Murphy. He was able to get people to

do things they did not feel they were able to do because they were focusing on the dog. Some things cannot be trained, such as Murphy's innate gift to know exactly what to do to help people overcome obstacles that were in their minds (Peterson, 1999).

*Attitudes of Staff Members.*

Miller & Ingram (2000) report a special benefit to staff members in hospitals that have AAT programs in their facility. The therapy animals not only help the patient but the staff members as well. Many staff members report having decreased stress from the strain of their job when the animals are around.

Moody et al. (2002) also have studied the attitudes of medical staff towards dog visitations at a hospital in Australia. The surveys given to the staff were initially obtained before the introduction of an AAT program. The results showed that the staff was receptive towards the program, prior to the starting the program. Surveys given after the program had been implemented for some time showed positive attitudes as well. The animals and the psychologist handler were both highly regarded by the staff. They reported that the AAT program enhanced the ward and the experience of the patients with minimal problems. The staff that was most directly impacted by the animal visits saw psychological benefits in the patients but also had added workload. Conversely, the study did not reveal details of the increase. This is the

only negative consequence found in this study upon introduction of the AAT program (Moody et al., 2002).

Richeson (2003) reported that while conducting an AAT program with nursing home resident's the staff was often overheard telling stories of their own pets to the study participants. Occasionally, staff from other areas of the nursing home would stop by the intervention room to meet the dogs and spontaneously engage in conversation with participants prior to the intervention. The researcher found that the intervention seemed to create an atmosphere of excitement and camaraderie among staff members (Richeson, 2003).

#### *AAT Utilizing Storytelling*

Reichert (1998) suggests that some children may not respond to the presence of the animal alone. The children in his study experienced sexual abuse and Reichert found that a further intervention, called *storytelling* with the animal, helped the child work through the trauma. A mental health professional creates a story that is tailored to the child's issues or circumstances. This technique was used with a child who was suspected to have been sexually abused but did not discuss it with anyone. The social worker, who was working with the child and handling a therapy dog, told the boy a story of a dog who went to the park and was sexually abused, and when he returned, his mother noticed he was acting differently. Upon conclusion of the story, his counselor asked the

child questions about the story regarding the feelings of the abused dog in the story. During the next session, the child held the therapy dog and told his story of sexual abuse by his neighbor to the counselor (Reichert, 1998).

#### *AAT with Emotionally Disturbed Children*

In a case study conducted by Kogan, Granger, Fitchett, Helmer, and Young (1999) two emotionally disturbed males, one 11 and one 12 years old, were provided AAT to better understand the effectiveness of animals with children with emotional disturbances. Both children were considered learning disabled and were in special education programs. The 12- year- old adolescent was diagnosed with mild mental retardation, attention deficit disorder, oppositional defiant disorder, depression, and explosive tendencies. AAT was recommended to help increase social skills with peers and adults, as well as to increase concentration. The 11- year- old adolescent had been diagnosed with depression and impulse control. The goal was to increase social skills, age appropriate behaviors, and increase sense of personal control through AAT.

Each child was given 14 AAT sessions. The sessions consisted primarily of rapport-building time and animal/training/presentation planning time. The rapport-building time consisted of the animal handler asking questions. These questions were based on information

given to them about a difficult time the child had had in the previous week or the child would communicate other information to them if they did not want to discuss the topics given to the handler by the teachers. The animal/training presentation planning time consisted of teaching the child how to handle and give the dog commands. The dog knew many commands, and, as the child learned these commands, he learned what was needed to get the desired response from the dog.

A Comprehensive Teacher Rating Scale (CTRS) was used to determine the progress for the boys. Both boys showed growth in a majority of the goals set for them prior to therapy. It appeared that the intervention was effective because the boys were given the opportunity to experience success and control over their environment as well as the ability to be a more active participant in their therapy (Kogan et al., 1999).

#### *AAT and Middle-Aged Schizophrenic Patients*

A study by Kovacs, et al. (2003) evaluated the effectiveness of AAT on institutionalized middle-aged schizophrenic patients. The therapy involved a handler and a dog, occurring over nine months, consisting of weekly 50-minute sessions. Chronic schizophrenic patients typically have decreased levels of activity, social functioning, and problem-solving strategies. The aim was to utilize AAT to help them increase functioning in those areas. Upon conclusion of the research they found a positive

effect for AAT in every area assessed. The changes were not only in the therapeutic sessions but also carried over into everyday life. The researchers attribute this to the improved emotional reactivity facilitated by the human/animal bond. Their bonds with the animals appeared to help them become more motivated to participate in rehabilitation therapy sessions as well (Kovacs et al., 2003).

### *AAT Health Benefits*

Beck and Katcher (2003) claim the health of people can be improved. Further, they state that most studies have been done with dogs and cats, finding that they are effective in reducing human responses to stress and lowering ambient blood pressure (Beck & Katcher, 2003; Odendaal, 2000). Several investigators have demonstrated the beneficial effects of interaction with animals on blood pressure of humans (Allen, 2003; Beck & Katcher, 2003; Brodie & Biley, 1999; Burgon, 2003; Johnson et al., 2002; Renck Jalongo et al., 2004) as well as lowered heart rates (Friedmann et al., 1980; Martin & Farnum, 2002). Johnson et al., (2002) found that it only takes 15 minutes of petting an animal to lower blood pressure by 5%. Siegel (1993) found that pet owners reported less doctor visits than non pet owners. In a study done by Sloane, Zimmerman, Gruber-Baldini, and Barba (2002), researchers found that dogs reduced hospitalization rates and cats reduced mortality rates. Beck and Katcher (2003) found that those with

dissociative disorders with an impaired capacity for intimacy have not shown the same positive benefits that other populations have (Beck and Katcher, 2003). Barker, Pandurangi et al. (2003) found that patients waiting for electroconvulsive therapy showed a clinically significant reduction of fear after spending only 15 minutes with a therapy dog (Barker, Pandurangi et al., 2003). Odendall (2000) found a reduction of anxiety in humans after measuring Cortisol levels before and after exposure to a therapy dog. Another study found that a fish aquarium in the waiting room tends to slightly reduce anxiety levels in patients (Barker Rasmussen, et al., 2003).

In research patients with Alzheimer's disease, Beck and Katcher (2003) found evidence was found that the presence of a dog resulted in increased social behaviors such as smiling, laughing, looking, leaning, and touching. Beck and Katcher (2003) also found that those who increased social behaviors in the presence of the dog were typically the same people, and those who were not affected were typically the same people. Those who were affected positively, also responded to a fish tank and began to improve eating habits (Beck & Katcher, 2003). Baun and McCabe (2003) found that companion animals can increase the quality of life for Alzheimer's disease. After a thorough review of the literature it appears that to date no research has been done to determine which populations are more or less responsive to contact with animals and which populations show the most increased health benefits. There is

also little information attempting to explain why and how the animals have an effect, but there is growing evidence that animals have positive effects on humans (Baun & McCabe, 2003).

#### *Health Benefits of Utilizing Dolphins in Therapy.*

According to Brensing et al. (2003), Dolphin assisted therapy has become increasingly popular worldwide to help mentally and physically disabled or terminally ill people. An analysis of EEG has shown the relaxing effect of human-dolphin interaction when compared to a group who did not have exposure to dolphins. The costs of therapy with dolphins are higher due to the water requirements and limited facilities. Due to the location in the water, some individuals with a great fear of water are not able to participate. It has been documented that when not being handled by trainers, dolphins will interact with patients differently than healthy individuals. In the past, it has been believed that the ultrasound was the cause of the healing effects. Still, it has been found, that when compared to higher levels of ultrasound needed for medical purposes, that the lower levels of ultrasound that dolphins emit to humans during interaction is not comparable (Brensing et al., 2003).

#### *AAT Risks Involved With Animals*

Any time animals are introduced into an environment there are risks associated with that contact. According to Beck and Katcher (2003) there is little indication that utilizing animals is dangerous, however the

researchers continued to say that few reports do exist. With AAA, and the lack of goal direction and evaluation being unclear, those working with animals can face criticism. Since there is little research identifying protocols for choosing those who will best respond to the animals and those animals that are best suited for a specific population, it is difficult to defend AAA without making generalizations. The benefits must outweigh the risks in order for this field to continue to grow. Part of the problem is that the majority of the people doing AAA and AAT are volunteers and few professionals are involved in and researching this field.

It is important not only to consider the risks that humans may face but also the risks involved in the treatment of the animals. With live-in animals in treatment facilities, it is imperative that they be provided with the basic necessities, such as food, water, shelter, social interaction, and veterinary care. Caretakers also need to be able to assess the mental health of the animal, for example stress levels, in order to maintain ethical treatment of the animal.

A risk that is taken with the introduction of an animal in a human's life is the consequences of a sudden death of the animal and the grief and bereavement that go along with a loss. Depending on the degree of the human animal bond, this can have harmful consequences (Beck & Katcher, 2003).

Cats are not utilized as often as dogs, because they are less predictable and many people are allergic to cat dander (Miller & Connor, 2000). However, well socialized cats with few fears are good candidates for AAT (Johnson, et al., 2002). It is important to identify any possible patient/client allergy problems prior to a visit for all types of animals being utilized in treatment. To aid in safety, it is also encouraged to have anyone who made contact with the animals to wash their hands after contact (Miller & Connor, 2000).

The National Center for Infectious Diseases [NCID] (2003), also known as the Center for Disease Control (CDC), recognizes the benefits of animals to humans. Yet, they also report that some animals can pass diseases to people. These diseases are called *zoonoses*. With regard to the risks they point out, they also mention that people have a better chance of getting sick from contaminated water than from pets, although the CDC suggests that it is possible.

According to Miller and Ingram (2000) a review of current literature found that there have not been documented cases of disease transmission from certified therapy animals, and the risk of zoonotic transmissions is extremely low. Nonetheless, this risk is often brought up when discussing negative aspects of AAT. As long as precautions are taken to determine if the animal is safe for the population being used and handlers always stay aware of those at risk and those with allergies, the risk of making humans sick remains low (Miller & Ingram, 2000).

Since the two most common therapy animals are dogs and horses, the potential medical risks as described by the CDC will be discussed.

### *Health Risks with Dogs*

As reported by The NCID (2003) some people are more likely than others to get diseases from dogs. The person's age and health affecting the immune system can increase the chances of getting sick. People most likely to get sick from dogs are children younger than five, organ transplant patients, people with HIV/AIDS, and people being treated for cancer. The germs can be passed through dog saliva and feces. The risks are significantly reduced if hand washing is a regular practice after interacting with the dog. The bacterial diseases the CDC reports to watch for with dogs are Brucellosis, Campylobacteriosis, Leptospirosis, Lyme Disease, Coxiella Burnetli, Rocky Mountain Spotted Fever, and Salmonella Infection. The parasitic diseases to watch for are Cryptosporidiosis, Tapeworm, Giardiasis, Hookworm, Leishmaniasis, and Roundworm. A viral disease to watch for is Rabies (NCID, 2003).

### *Health Risks with Horses*

Just as with dogs, the NCID (2003) states that some people are at more risk of getting sick from horses than others. People most likely to get sick from horses are children younger than five, organ transplant patients, people with HIV/AIDS, and people being treated for cancer. The germs can be passed through horse saliva and feces. As with dogs

the risks are significantly reduced if hand washing is a regular practice after interacting with the horse. The bacterial diseases the CDC reports to watch for with horses are Campylobacteriosis, Leptospirosis, and Salmonella Infection. The parasitic disease to watch for is Cryptosporidiosis and the fungal disease is Ringworm. It appears the risk with horses is the lowest of the domesticated animals (NCID, 2003).

### Description of Hippotherapy

The term hippotherapy literally means treatment with the help of the horse

derived from the Greek word, “hippos,” meaning horse. According to the AHA (2000), the term hippotherapy implies that hippotherapy is a separate form of therapy, using the horse’s movement as a modality or tool by specifically trained physical therapists, occupational therapists, psychotherapists, and speech and language pathologists. This specialized training can be obtained through the AHA, which is a division of the NARHA (AHA, 2000).

The most critical characteristic of hippotherapy according to Benda, McGibbon, and Grant (2003) is that the gait of the horse provides a precise, rhythmic, and repetitive pattern of movement comparable to that of the natural human gait. These slow, rhythmic movements appear to promote relaxation, while at the same time promote bilateral symmetrical postural responses that increase tone in

the hypoactive muscles of the rider. When using controlled movements the outcome of riding includes mobilization of contracted pelvic and spinal joints, normalization of muscle tone, and development of more symmetrical, controlled head and trunk posture. This allows many disabled children, after a series of hippotherapy sessions to walk with greater ease, improve motor function, improve in respiration, speech, and language, have a heightened motivation and compliance, experience psychological enhancement from moving freely through space without constraints of assistive devices, and show emotional improvements from bonding with another species (Benda et al., 2003). Many of these improvements come from better balance. To have good balance in gait implies an ability to preserve the erect line between head and pelvis. The center of gravity for humans is in the pelvis. The arms follow the trunk, giving equilibrium and emphasizing pace (Mattsson & Mattsson, 2002).

### *Hippotherapy Practitioners*

Hippotherapy certification requires the professional to be licensed in their professional occupation, have a minimum of three years of full-time clinical practice, and at least 100 hours of hippotherapy practice, independent riding ability, attend an AHA approved, three to four day introduction to a hippotherapy course, and be able to pass a written examination on the clinical specialty of hippotherapy (Landers, 2002). The examination is the Hippotherapy Clinical Specialist Examination.

When this exam is passed, the therapist or professional holds the title of Hippotherapy Clinical Specialist (HPCS).

As of the summer of 2000, fewer than 50 clinical specialists held the HPCS title, although this number has grown since then (AHA, 2000). In addition to the professional requirements, these professionals also need to be skilled horse persons and understand the movements and behaviors of horses. They also need to know each horse that is available to them well in order to match the right horse to the right person (Landers, 2002). The reason it is important to have a working knowledge of the horse is that without a sufficient understanding of the movement of the horse, the hippotherapist will not be able to direct the experienced horse's handler to alter the tempo and direction of the horse as needed by the patient's responses (AHA, 2000).

True hippotherapy involves a specific treatment plan customized for each individual (Landers, 2002). Disabilities that are often treated with hippotherapy are cerebral palsy, arthritis, multiple sclerosis, psychological disorders, and spinal injuries. However, the bulk of the research is on children with cerebral palsy. Hippotherapy, when utilized as a treatment approach, involves activities on the horse to help patients improve in function, coordination, mobility, and balance. Hippotherapy is goal directed and progress is documented and evaluated. The client is positioned on the horse and actively responds to the movement. The therapist directs the movement of the horse and analyzes the client's

responses and then adjustments are made for the progress of the treatment.

### *Utilizing Horses in Hippotherapy*

Horses are particularly suited to work with therapeutic issues since the horses walk provides sensory input through their movement, which is variable, rhythmic, and repetitive. The resulting movement responses in the patient are comparable to human movement patterns of the pelvis. The variability of the horse's movements enables the therapist to gauge the degree of sensory input to the patient, and then make use of this movement in combination with other treatment strategies depending on patient goals (AHA, 2000). According to Cherng, Liao, Leung, and Hwang (2004) the movements of the horse are similar to that of humans while walking. The horse's pelvis moves an average of 3.9 degrees of pelvic motion in the sagittal plane, 10 degrees in the frontal plane, and approximately 10 degrees in the transverse plane. A human's gait is 2 to 3 degrees of pelvic motion in the sagittal plane, 10 degrees in the frontal plane, and approximately 10 degrees in the transverse plane. This translates into the ability of the horse's movement to provide a therapeutic effect with balance, equilibrium, posture, and sensory integration of the kinesthetic, visual, and vestibular input needed for motor control (Cherng et al., 2004). The similar movements and the ability of the therapist to modify the movement qualities is where the

horse, as a tool, supersedes other animals in this field of utilizing animals as an adjunct to therapy (AHA, 2000).

### *Hippotherapy and Cerebral Palsy*

Cerebral palsy is a nonprogressive disorder of movement and posture due to a defect or lesion of the immature brain. The primary motor function problems are delay or arrest of motor development, slow walking speed, low endurance for activity, and abnormal movement patterns (Cherng et al., 2004; Koman, Paterson Smith, & Shilt., 2004). Spastic cerebral palsy is the most common type according to Cherng et al. (2004). People with cerebral palsy usually have persistent primitive reflexes, inappropriate muscle activation, delayed or inadequate equilibrium reaction, increased energy consumption during locomotion, and weakness of trunk muscles. Long term therapy is needed for these children. It is often difficult to provide activities that are therapeutic, adapted to their specific treatment needs, and able to keep the children's interest and enthusiasm because of the difficulty and discomfort this activity has on them (Cherng et al., 2004).

Both counselors and physical therapists work towards helping their clients overcome obstacles (Uppal, 2003). Cherng et al. (2004) conducted a within-participant, repeated-measures design to assess the effect of hippotherapy and gross motor function in children with spastic cerebral palsy. The counselor and physical therapist had two groups of

children: Group A received hippotherapy for 16 weeks, a second assessment after hippotherapy, followed by regular treatment and then a third assessment. Group B had the same treatment but in reverse order. The hippotherapy sessions were 40 minutes 2 times per week, so each group received sixteen weeks of treatment. Those who were prone to seizures were excluded for the safety of themselves and the horse. The children did gentle exercises and breathing exercises, and then they were seated on the horse. Depending on the treatment goals for each of the children, the activities and movements while on the horse varied so as to be customized to his or her particular challenges. They were instructed to touch the horse to promote bonding. Some of the activities the children did on the horse were goal directed games such as lying on the horse, stretching and balancing on horseback, and ball activities. The results of the study found that hippotherapy improved the gross motor function in some children with cerebral palsy. The results showed improvement in children with both severe and mild motor deficit. The children that did not improve did not have a common factor. The first group made the most progress (Cherng et al., 2004).

One little boy showed dramatic success with a hippotherapy program as described by Bailey (2003). Prior to hippotherapy he could only creep on all four limbs. After the therapy, he was able to walk with a posterior walker. His walking speed, however, decreased during the treatment time following the hippotherapy. Another child, who showed

dramatic improvement, was a girl who could walk independently but with poor endurance, lasting only two or three minutes. After hippotherapy, she was able to walk for the duration of one hour (Bailey, 2003).

Benda et al. (2003) researched the effect of hippotherapy on muscle activity in children with cerebral palsy. They used a remote transmitter to collect electromyography (EMG) activity to determine changes in muscle activity after hippotherapy sessions and to determine changes in muscle activity after sitting on a barrel. The children in the control group were sitting on barrels instead of horses. The two horses used in the study were both trained therapy horses with good temperaments and similar movements. The children rode the horse as the handler and lead it in circles, or sat on a barrel and watched horse videos for eight minutes. After the eight minutes, the children would go through activities such as sitting, standing, and walking, which was also a part of the pre-test protocol. They found a significant increase of muscle activity in the children who rode the horse and little to none in the children who sat on the barrels (Benda et al., 2003).

### Therapeutic Horseback Riding

Therapeutic horseback riding according to the AHA (2000) is a term that has been used for many years to encompass a large variety of horse (*Equus Caballus*) related activities in which people with disabilities participate (AHA, 2000). Therapeutic riding is differentiated from

recreational riding, and is used to describe rehabilitative uses of the horse and the aim is to somehow improve the life of the rider (Kaiser et al., 2004). Therapeutic horseback riding is an umbrella term still commonly used today; though, when the therapy is utilizing the movement of the horse as a treatment tool to improve neuromuscular functioning, the term cannot be applied because that involves a more specific type of therapeutic horseback riding called hippotherapy (AHA, 2000).

Grandin and Johnson (2005) state that people and animals are supposed to be together. Humans and animals have evolved together, and we used to be partners. Now people are cut off from animals. Back when horses were a mode of transportation most people had a horse of their own and knew of this bond that has now been lost by so many. A psychiatrist in Massachusetts who works with teenagers often says that two kids who have the same problem to the same degree of severity, and one of them rides a horse regularly and the other does not, the rider will end up doing better than the nonrider (Grandin & Johnson, 2005).

Many of the research articles found use the term therapeutic horseback riding to describe hippotherapy. Yet, other researchers and the AHA (2000) have made the distinction very clear. All and Loving (1999) describe the identifier of therapeutic horseback riding to be when the recreational enjoyment of riding is accompanied by stable management and used as a goal to increase the quality of life of a person,

utilizing the interaction of the horse and not the movements. This therapeutic riding can promote many social, emotional, and physical benefits (Bizub et al., 2003). Some of these benefits are improved self-confidence (Burgon, 2003; Farias-Tomaszewski et al., 2001), courage (Farias-Tomaszewski et al., 2001), motivation (Burgon, 2003; Farias-Tomaszewski et al., 2001), increased social involvement (Farias-Tomaszewski et al., 2001), reduced anger (Kaiser, Spence, Lavergne, et al., 2004) and taking risks to experience new things (Burgon, 2003).

Kohanov (2001) writes:

When working with a horse, one can be inspired by the horse's own creative energy. The process of getting in touch with a horse, both literally and figuratively, can help to enhance one's appreciation for both the horse and one's self. With this in mind, we suggest that therapeutic horseback riding is a promising way for such individuals to regain a steadier hold on the reins and come to more fully participate in their own lives (p. 201).

### *Benefits of Therapeutic Horseback Riding*

Bizub et al. (2003), found that the presence of an animal often has a normalizing effect that helps to bridge a gap that exists between people with disabilities and health care professionals, providing hope for both. The primary goal and benefit is to improve the quality of life of the client. This improvement can happen through healing. According to Burgon

(2003) the biggest drawback to therapeutic riding is the considerable cost involved in running a riding therapy establishment. However, if costs are compared to incarcerating an offender, the costs can be viewed as minimal (Burgon, 2003).

Throughout history horses have been recognized as healers (Bizub et al., 2003). An ancient Greek sage stated, "The outside of a horse is the best thing for the inside of man" (Bliss, 1997, p. 70). The ancient Greeks were perhaps the first to realize the therapeutic effects; they would offer rides to individuals who had illnesses, with the assumption that the ride would elevate the ill individual's mood. This assumption is still around today, and the result is therapeutic horseback riding. The accomplishment of learning to ride a horse has been known to build self-esteem and self-awareness (Bizub et al., 2003).

#### *Therapeutic Horseback Riding with Adults with Physical Impairments*

Farias-Tomaszewski et al. (2001) did a 12 week exploratory study to assess the benefits of therapeutic horseback riding for adults with physical impairments. They had one group and a pre-test/post-test design. These measures included both physical (perceived confidence in one's physical self-presentation) and global self-efficacy measures (general efficacy expectations not limited to physical abilities). These groups were measured using questionnaires completed by the riders and the staff. The participants had the following disabilities: multiple

sclerosis, head injury with physical impairments, spinal cord injury, cerebral palsy, and scoliosis. The focus of the therapy was based on the experience of riding and being with the horses and not on using movement of the horse for a therapeutic affect. They found a significant increase in how the riders viewed themselves with regard to physical ability, and they displayed increased confidence with regard to their physical self-efficacy after treatment. They also found the riders increased the demonstration of overt signs of increased self-confident behaviors. Even though they found improved physical self-efficacy and self-confidence, the results did not indicate improvements in global self-efficacy as they had expected (Farias-Tomaszewski et al., 2001).

### *The Mythical Horse*

The relationship of horses and humans is not new. The horse is often cited in mythology and folklore (Jung, 1966; McBane, 1999). Mythologies and folklore can be found all over the world containing the same pattern (Dieckmann, 1997). The three most popular mythical horses are the Pegasus, Unicorn, and Centaurs. Pegasus is the Greek winged horse, which became a star constellation in the northern sky, and is still named Pegasus today. The Unicorn is a mythical creature that is a horse with a horn upon its head. The unicorn has been a symbol of peace, love, purity, and healing. The Centaur is another mythical creature that is half human and half horse (McBane, 1999).

Horses are also commonly found in dreams. Jung (1966) felt that animals that appear in our dreams help guide us through our difficulties. For example, McCormick and McCormick (1997) said Jung contended that wild horses represent uncontrollable instinctual urges that erupt from the unconscious, even if one tries to repress them. According to Carl Jung (1966), in his writing on archetypes, the horse represents the nonhuman side of the human unconscious. The horse is most closely related to the archetype of the mother, with the difference being the mother represents life, and the horse represents the life of the animal with the human body (Jung, 1966). Carl Jung also discovered that people use symbols to communicate with one another in powerful ways on an unconscious level. The symbol of the horse can mean different things to different people. For example, one person may see the horse as a large four-legged animal, while another may see it as a noble conqueror. Regardless of what the horse means to the person, the horse always produces an affect-laden image (Jung, 1964).

#### *A Case Study of a Child with Multiple Disabilities*

Lehrman and Ross (2000) wrote a case study based on the experience of a 9-year-old girl named Mary. Mary went to a therapeutic riding program for 10 weeks. Before she started the program, she seldom made any verbal sounds or functional signs, as she was diagnosed with moderate mental retardation, and had limited

coordination of the legs, trunk, and neck. She also suffered from lack of balance, which prohibited her from walking or standing independently, and visual impairments including limited fixation on an object.

Mary was first acquainted with the horse and a team of trainers. Next, she sat on the horse. She gradually learned to mount the horse; then she rode the horse as the trainers walked the horse around in circles. Mary had a great deal of success; after the 10 weeks of therapeutic riding, she was able to walk short distances at the arena and at home. She also showed an increase in verbal sound and improved her ability to fixate her eyes on objects. Though the data was collected over a period of ten weeks, Mary continued therapy due to her positive response to this form of treatment (Lehrman & Ross, 2000).

### *Therapeutic Vaulting*

Vidrine, Owen-Smith, and Faulkner (2002) researched *therapeutic vaulting* which is another form of therapeutic horseback riding. This activity involves dance and gymnastics on the back of a moving horse. The beginnings of this ancient sport have been traced back to the games in early Rome and during the Middle Ages when knights practiced jumping onto horseback and performed elegant exercises while in armor. Modern day vaulting is heavily used in Europe to prepare equestrians for riding and as therapy for individuals with special needs. Vaulting can still be found today as a competitive sport.

Therapeutic vaulting according to Vidrine et al. (2002) is based on modern day competitive vaulting. In therapeutic vaulting, the developmental sequence of compulsory moves, teamwork when caring for horses, communication in move sequences, and self-expression doing freestyle movement are emphasized. In order to practice this sport competitively it takes years of practice. Beginners are trained to do exercises that enhance the chances for success. The moves are first mastered on a stationary barrel, then performed on the horse. Therapeutic vaulting strives for comfort, balance, and success for each vaulter rather than focusing on competition and highly challenging maneuvers (Vidrine et al., 2002).

#### Equine Assisted Activities (EAA)

Many researchers have found that counseling alone has been shown to be effective (Howey & Ormrod, 2002; Hunsley & Rumstein-McKean, 1999). Equines have also been shown in several studies to be effective and produce some level of therapeutic benefit. When the effectiveness of both counseling and the utilization of horses are combined, the results can be astounding (Delta Society, 1996; EAGALA, 2003; NARHA, 2004).

It is important to discuss the terminology that is often used when utilizing animals as an adjunct to therapy. Animal Assisted Therapy

(AAT) and Animal Assisted Activities (AAA), as defined by the Delta Society (1996):

AAT is a goal-directed intervention in which an animal meeting specific criteria is an integral part of the treatment process. AAT is delivered and/or directed by a health or human service provider working within the scope of his/her profession. AAT is designed to promote improvement in human physical, social, emotional, and/or cognitive functioning. AAT is provided in a variety of settings and may be group or individual in nature. This process is documented and evaluated (p. 79).

As defined by the Delta Society (1996) Animal Assisted Activities (AAA) are:

activities that involve animals visiting people. The same activity can be repeated with different people, unlike a therapy program that is tailored to a particular person or medical condition. AAA provides opportunities for motivational, educational, recreational, and/or therapeutic benefits to enhance quality of life. AAA are delivered in a variety of environments by a specially trained professional, paraprofessional, and/or volunteer, in association with animals that meet specific criteria (p. 79).

The differences may seem subtle; however, the differences lie in their definition and function (Delta Society, 1996).

Just as the standard of practice for animal assisted activities and animal assisted therapy is structured to accommodate special needs of a client population and provide safe interactions between animals and people (Delta Society, 1996), *equine assisted activities* (EAA) also follow the same standards (NARHA, 2004). Appropriate accommodations need to be made for a client population receiving services. Different populations have different needs and the population one is working with will be determined prior to any visits in order to have any special needs taken care of before the visit (Delta Society, 1996).

EAA and AAA are essentially the same thing. The only difference is that equine specifies that horses will be utilized as an adjunct to therapy instead of another species. Because horses have become so popular, when horses are utilized, EAA is often used. The NARHA is an organization promoting and supporting equine assisted activities in the United States and Canada. NARHA also supports both hippotherapy and therapeutic riding. They help to establish guidelines for working with individuals with disabilities. They do this by promoting the equine(s) ability to help those who participate to experience physical, emotional, and mental rewards (NARHA, 2004).

### Equine Assisted Psychotherapy (EAP)

The research makes it difficult to separate EAP from therapeutic horseback riding. This is primarily because many of the programs in

existence use riding as a means to facilitate a therapeutic effect. The aim of this section is to provide discussion surrounding the benefits of the horses as an adjunct to therapy; nonetheless, due to the nature of current research, it is impossible to entirely exclude some crossover with therapeutic riding. The term equine-facilitated therapy is also used to describe EAP, when the goals are the same, but a licensed mental health professional is not involved. According to the EAGALA, EAP is a powerful and effective therapeutic approach. EAGALA is a nonprofit organization developed to address the need for resources, education, safety, ethics, and professionalism in the field of EAP (EAGALA, 2003).

Another organization that supports EAP is the Equine Facilitated Mental Health Association (EFMHA) which is a section of NARHA (2003). It is globally recognized and promotes health by bringing people and horses together in mutually beneficial ways. Their mission is to: (1) promote professionally facilitated equine experiences to enhance psychosocial development, growth, and education; (2) educate others to work with the horse in the treatment of people with emotional, behavioral, social, mental, physical, and/or spiritual needs; (3) establish a library of instructional, certification, research, diagnostic and safety materials supporting all aspects of EAP; (4) to set standards of horse knowledge, including selection, training, and stable management pertaining directing to equine facilitated psychotherapy; and (5) to provide a foundation to see EAP into the future (NARHA, 2003).

### *Characteristics of EAP*

According to EAGALA (2003), in order for the term EAP to be used, a licensed mental health professional must be involved. The term equine-facilitated therapy is also used to describe EAP and is usually the term used when a licensed mental health professional is not involved. The goal is for the participants to learn about themselves and others by participating in activities with the horse. The focus is not riding or horsemanship and 90 percent of the activities usually take place on the ground. At times, activities take place without mounting the horse. Activities are usually set up that promote nonverbal communication, assertiveness, creative thinking, problem solving, leadership, work, taking responsibility, teamwork, relationships, confidence, and attitude to name a few. Horses are large and powerful animals, and their size and power are naturally intimidating to people (EGALA, 2003). Christian (2005) found that often fear or intimidation of the horse, is really a fear of change itself. EGALA (2003) further states that when people are able to accomplish a task with the horses, despite their fears, it creates confidences and provides metaphors that can be utilized to help translate other intimidating and challenging situations in the life of the client from metaphors into real life.

Horses are said to be effective as a cotherapist since they have the amazing ability to mirror what the human body language is communicating to them (EAGALA, 2003). Often, when the client is

complaining that the horse is stubborn or does not like them, the therapist can use that information to help the individual work to change something in themselves. Once the change has occurred, the horse often responds differently. Thus, this mirroring ability makes horses especially powerful messengers (EAGALA, 2003). It is similar to biofeedback, i.e., the horses show in an external way a person's inner process. The horses can detect even the smallest involuntary physical reaction in humans that are a result of unconscious fears and anxieties (McCormick & McCormick, 1997). These abilities to perceive things in the world are often astonishing to humans. It is difficult to understand the extreme perception of animals. People often try and explain it by saying animals have extra-sensory perception (ESP), however, this is not the case, they just have a supersensitive sensory apparatus (Grandin & Johnson, 2005).

In EAP different horses have different skills and work best with different populations. Linda Kohanov (2003) does EAP and reports one horse, a mustang named Noche, works best with sadness. She reported that Noche would single out people with deep, hidden sadness. His presence was able to uncover their underlying sadness, as demonstrated to the author when the clients would reveal memories they had never been able to speak out loud to anyone (Kohanov, 2003).

### *Horses and the I/Thou Relationship*

When working with the horses, clients do so utilizing what Martin Buber called the I/Thou relationship. According to Buber (1923, 1970) an I/Thou relationship means that there is a direct, mutual, and present interaction, where the person is relating to the whole of the other (Buber, 1923, 1970). In this relationship, the self only exists in relationships to others (Corsini & Wedding, 2000). The I/Thou relationship is not limited to humans but includes animals, trees, objects of nature, and God (Buber & Friedman, 1965).

Buber developed the I/Thou concept around a relationship he had with a horse he came to love in his youth (McCormick & McCormick, 1997). The horse helped him to think of the otherness of the other. He found that he could feel the life beneath his hand as he stroked the horse and came to recognize it not as a farm animal but as a sacred companion. This otherness of the horse went beyond any selfish purpose of personal fulfillment that the "it" may serve. The "it" refers to the other form relationships I/It can take which is treating the other as an object and defining the other by what they do. If the horse is an "it" to the person, then the horse will be nothing but an object and can be easily dismissed (Kowalski, 1991).

The horse teaches people to give as well as take, teaching an awareness of self and others through the intimate relationship of developing a friendship (McCormick & McCormick, 1997) or relatedness

(Cooper, 2003) with the horse. An intimate friendship with a horse is one of mutual respect. Through this friendship, individuals often learn to develop the capacity to genuinely reach out and take interest in others. They learn healthier styles of relating and interacting, and become aware of the needs of others by learning the needs of the horse (McCormick & McCormick, 1997).

Buber says that the genuine communication that happens in the I/Thou relationship does not require vocal speech, but can take place in silence (Cooper, 2003). In order to communicate in silence one must really be *there* in the relationship (Buber, 1947, 1961). According to Alerby and Elidottir (2003) Erik Gustaf Geijer said, "The only wise one, is the one who understands silence" (p. 41). Though silence means different things to different people, silence does in fact have a message and the silence tells us something. A being alone is not silent; a being can only remain silent when in the company of another being (Alerby & Elidottir, 2003).

### Horses and Incongruent Emotions

Satir (1967) states a lack of clear communication resides in contradictions. She states that people may quite often observe contradictions between verbal and nonverbal messages. In these incongruent communication patterns one is protecting themselves from being vulnerable, by giving camouflaged messages (Satir, 1967).

According to Kohanov (2003), incongruent emotions are the difference between who the person is pretending to be and who the person really is. Horses have an uncanny ability to see through the external visible emotions people present. They also have a tendency to draw out and reinforce what the person is really feeling internally. Harter, Marold, Whitesell, and Cobbs (1996) define the behavior of what people present externally as the extent to which one is acting in ways that do not reflect one's true self as a person or the "real me." The act of being authentic is when one is acting in ways that do reflect the true self or "real me." When a discrepancy exists between what one is feeling and what one is projecting (Harter et al., 1996), horses can pick up on these incongruent emotions.

The goal of identifying the incongruent emotion is to help the client on their journey to become congruent. Banmen (2002) describes congruence as a state of internal and external harmony. It is a sense of calmness, wholeness, peace, and tranquility. Congruence provides the client with a sense of empowerment, which means that the individual is not controlled or triggered negatively by the outside world, but responds to the world from a state of internal harmony with one's deepest self, as well as with others and within the context of the situation (Banman, 2002).

Clay (2004) is a psychologist who utilizes horses as an adjunct to her practice. In her experience, Clay found that horses share attributes

associated with effective teachers, therapists, and spiritual leaders. She wrote that it does not seem to matter that horses are another species and do not speak our language; they somehow have the ability to foster human growth. Horses relate to us in direct response to how humans approach them. If they are always approached the same way, they will keep responding with the same information. This is why the therapist must recognize and take care of his or her own issues before trying to help anyone else with the horse as an adjunct to therapy. When working with horses in therapeutic situations, Clay is always reminded of an old Arab proverb “the horse is your mirror.” If the horse is displaying something, it may be time to look within before trying training methods to change a behavior. This is a key concept to how equine-facilitated therapy works (Clay, 2004).

Horses have a unique ability to comfort people; they seem to be capable of unconditional positive regard. According to Clay (2004) this becomes apparent when working with a client. Further, within minutes, many feel accepted by these gracious companions that have the ability to point us in the right direction while remaining nonjudgmental and supportive. They also provide effective feedback; although nonverbal, it is very reliable. An easy to recognize example is if one is crossing one’s arms and has feelings of anger inside and then tells the horse “I’m not mad at you,” the horse will pick up the nonverbal true emotion and respond to the anger, not the statement. Typically it is much more

subtle. For example, a woman was working with a horse for several months, and the horse kept disobeying her and acting out. Clay (2004) states that after processing the situation and looking within, she realized that her suppressing her need to become more assertive was the explanation. The horse was pushing the woman to get her to be more assertive with him, since he recognized this inner conflict. These incongruent emotions, of trying to show one while feeling another, did not fool the horse the way the woman was able to trick her human companions (Clay, 2004). This ability is paramount to understanding the effectiveness of utilizing horses as an adjunct to therapy.

A woman came to Linda Kohanov (2003), not for her equine-facilitated therapy, but for help with a horse Rocky that was out of control. After spending a few moments with the horse, Kohanov asked the woman, if something had happened to her. The woman responded with a story of losing her job. Rocky then lowered his head and licked his lips, which is a sign to the therapist that the horse is feeling an unacknowledged emotion in the client. The horse was picking up on an emotional incongruity. Kohanov encouraged the woman to talk about what was really bothering her. She then told an emotional story of abuse and trauma she had suffered. Rocky, a horse that getting too close often meant that one was going to be risking injury, then put his head on the woman. It seemed the horse was acting out because of incongruent

emotions in the owner and not because he was an out of control horse (Kohanov, 2003).

### *Incongruent Emotions: Importance in Treatment*

Emotional incongruity is the act of hiding one emotion by trying to feel something else or the discrepancy between the true feelings and the false feelings (Kohanov, 2003). According to Bello and Edwards (2005), people protect their face to form an expression of ambiguity or vagueness to avoid showing a hurtful truth or when they are being deceptive (Bello & Edwards, 2005). One of the key principles according to Kohanov for equine-facilitated therapists to be aware of is that the horses often are a mirror to the feelings behind the façade that the client is creating. An example of emotional incongruity is the client expressing positive body language or wearing a social mask, often described as “putting on a happy face,” when inside happiness is not the emotion. The horses pick up on the blood pressure, muscle tension, and emotional intensity that are transmitted unconsciously by someone who is actually afraid, frustrated, or angry. When observing the horse-client interaction, the horse will often relax the moment the hidden feelings are acknowledged, even if the emotion is still there, because now the person is being congruent (Kohanov, 2003).

Kohanov (2003) further states that the horses are able to receive the emotions because they are able to pick up on things people are

hiding from themselves and others through their internal body responses. The human nervous system sends horses involuntary broadcast of what people are really feeling. Unlike humans, horses do not judge or reject others for what is being felt, but suppressing emotions can cause them to act out. Why they are able to do this may be due to the natural defenses in the wild that come from being a prey animal, such as being able to determine if a predator is just passing by or looking for a meal. This author would like to note humans have this to a lesser capacity, for example walking into a room and seeing someone with a smile, as they say "I'm doing great," and knowing there is something wrong. Nonverbal communication is quite powerful (Kohanov, 2003). One of the reasons people have a difficult time picking up incongruencies is because people do not display typical behaviors when being deceptive (Vrij, Edward, & Bull, 2001).

### *Incongruent Emotions in Adolescents*

Harter et al. (1996), contends when adolescents have incongruent emotions and display a false self, they do it for one of three reasons. The first is when the parental figures did not adequately validate a sense of true self during their development. The second is when the false self is presented in order to attempt to present the self in a manner that will impress or win the acceptance of others. The third is developmental experimentation of normative roles.

Most of the children in the Harter et al. (1996) study were abused. When a child is victimized, they are faced with complex social, emotional, and cognitive tasks in trying to make sense out of the experiences that threaten their body and life. They spend much of their time absorbed in the task of physical and psychological survival. Over a period of time, the abuse can cause the child to blur the lines of his or her psychological self and that of the abuser. They often develop a “false self” that functions to fulfill the needs of the parents in order to obtain their love. The child’s perception of self becomes dulled by the burden of being forced into becoming the psychological extension of his or her guardian. What can result from this is the child suppresses his or her authentic self. When working with this population, Atwood and Donheiser (1997) reported that the environment can be more helpful in restoring an authentic self when the therapy environment has policies that make the child feel safe. Four helpful policies are: (1) no exploitation or misuses of power shall occur; (2) no intrusion of any members psychological or physical space shall occur; (3) no intimidation or binding oaths of secrecy shall occur; and (4) policies should be flexible yet consistent (Atwood & Donheiser, 1997).

### *Themes with Adults with Psychiatric Disabilities*

Bizub et al. (2003) completed a qualitative study of the effects of horses with regard to therapy. They performed a semi-structured

interview with five 26-45 year olds with diagnoses within the schizophrenia spectrum, personality disorders, and one with a co-occurring substance use disorder. The researchers asked questions ranging from general to specific in order to prompt as rich of an account of the participants experience as possible while being audio taped. The audiotapes were then transcribed to determine themes that came up for the clients who participated in therapeutic horseback riding.

The participants were not limited to only riding the horses. The therapy was divided into three parts. First, they spent time engaged in bonding activities with their horse. This involved petting and grooming. The second part was mounting activities which included lessons on basic horsemanship (learning commands such as “whoa” and “walk on,” steering a horse and posting to the trot, and trail rides. The third part was post-riding processing. This involved returning the horses to their paddocks and a post-lesson processing group that utilized creative exercises. Some of these exercises included making collages, exploring poetry written about animals, and writing a letter of thanks to the horse they had ridden. During the three parts, the certified therapeutic riding instructor and clinical staff continually gave the riders positive feedback on their performance. The purpose was to build a foundation of mastery that could help them in other future endeavors. This also helped move the experience of being with the horses from scary to something enjoyable.

Bizub et al. (2003) found three major themes emerged as a result of thematically examining the transcriptions of the rider's experiences. The first major theme was that meeting the challenge of fear was recognized by the riders as crucial in their growing sense of achievement and agency. The successes they experienced from riding grew into a larger sense of accomplishment, which opened thoughts of future hope, upon reflecting on how much they learned and how much that learning could be applied to making strides towards their goal of recovery. One rider commented, "instead of putting myself down, I'm thinking a lot of positive thoughts, and I'm thinking my life is improving, it's getting better" (p. 381).

The second major theme Bizub et al. (2003) found was the therapeutic impact, which included coping skills and relationships. Grooming, petting, and sharing gave the riders a kind of intimate, physical contact creating a relationship. One rider said, "It made me feel like the horse loved me. Spending time with the horse, it felt like unconditional love" (p. 379). They also developed a respect and empathy for the animal, giving them the opportunity to make a strong and deep connection with the horses that can translate to other areas of their lives, such as relationships with other humans. The participants also reported being able to sleep and relax easier in the evenings after the sessions.

The third major theme that emerged was that they began to view themselves as capable and curious, especially about horses and

horseback riding and were able to gain more insight into themselves as a result. One rider commented, “Well, what I notice is that...if I remain quiet and don’t talk so much and listen and concentrate, and learn to calm myself down, that I can get anything done...I have learned to like, just relax and just listen and go with the flow (p. 381).” These themes point out that equine assisted therapy can provide an experience for the clients to learn more, do more, and, eventually be more.

An unexpected benefit came about for the clients’ during the drive from the city into the country. The change in environment provided a sense of escape. The 40 minute drive helped the clients to develop bonds with each other and learn to support one another. This group cohesiveness had not happened previously and extended into life at the facility as well (Bizub et al., 2003).

#### *Themes with Children who are Grieving*

Glazer, Clark, and Stein (2004) also researched themes that came up for a population when utilizing horses as an adjunct to therapy. They worked with a therapeutic riding program that also included developing a relationship with the horse and therapist, positive nurturing towards horses through grooming, exploring companionship with the horse, identifying the horse’s physical and emotional needs, discussing trust between child and horse, guiding horses, safety rules, expressing emotions to the horse, and having the children identify experiences in

which the horse had to trust the child. Since the goals went beyond riding for a therapeutic effect and included other bonding and communication exercises, this is classified as equine-assisted therapy. All of the children from 4 to 14 were in the process of grieving the loss of a parent and were accompanied by a parent or grandparent.

In order to determine themes that came up for the children, their experiences were documented. At the end of each of the six sessions, the children were asked to tell things they learned from their relationship with the horses that they were going to be able to use in their lives. The parent or grandparent of each child was asked to reflect on what occurred in the session and what the child did during the session and to write down their perceptions. Each child was assigned a volunteer who also documented what occurred in each session. This information was analyzed by a qualitative researcher to find the major themes that came up for the children as a result of working with the horses.

The first major theme Glazer et al. (2004) found was confidence building. This included a sense of mastery, independence, and overcoming fears. The children were able to learn how to care for and ride the horse, as well as overcome fears they had. This increased their confidence in themselves as they were all successful in mastering the tasks they were asked to do.

The second major theme they found was trust building. This included the nonjudgmental aspects of the relationship and the horse's

response to the child. The children had developed a confidant to express their secret thoughts to in the horse. The children were not asked or expected to disclose this information to anyone; it was allowed to be private between them and the horse.

The third theme that came up was communication. This included comments about being able to share secrets and affectionately talking to the horse. The children would often affectionately talk to the horse, expressing to the horse wishes about dead parents, whispering to the horse about how the loss has changed their lives, secret desires, and wishes they have. The parents and grandparents reported that the things that they learned, such as confidence, trust, and communication, were translated by the children into behaviors at home (Glazer et al., 2004).

### Communication

According to Gabbott and Hogg (2000) communication, no matter what the species, consists of a signal sent by the sender, the means of transfer used for the information to be exchanged, and the message being received by the receiver. Further they state that most communication occurs between members of the same species; this is often referred to as intraspecific communication. This does not mean that communication across species cannot occur. Many animals will recognize the alarm calls of other species, particularly when they share a

common predator. This will give the hunted a better chance of escape and therefore survival (Gabbott & Hogg, 2000). Communication is important for survival in social animals such as horses (Kidd, 1995).

### *Nonverbal Communication*

For the purpose of this study, nonverbal communication is defined as taking place every time one person interacts with another person or species (Gabbott & Hogg, 2000) without speaking. According to Gabbott and Hogg (2000) nonverbal communication may be intentional or unintentional and is part of the rapid stream of communication that passes between two interacting individuals transcending the bare elements of the written or spoken word. It encompasses aspects of emotions, and body language including facial expression, eye contact, posture, gesture, and interpersonal distance. Since most of the information that the horse receives relies on nonverbal communication (the remaining being chemical scents), it is important to have an understanding of this style of communication. Research suggests that up to 90 percent of the communication between humans is transmitted nonverbally (Gabbott & Hogg, 2000).

Nonverbal communication continuously gives information about our attitudes and state of inner life. Humans unconsciously perceive this nonverbal information and are influenced by it (Mattsson & Mattsson, 2002). It has been recognized by scholars that, in humans,

nonverbal behaviors communicate relational messages (Floyd & Erbert, 2003). Four elements of nonverbal communication in humans have been identified: proxemics, kinesics, oculusics, and vocalics. Proxemics is the use of personal space and distance. Kinesics is body postures and movements. Oculics is communicative aspects of eye behavior such as gazing and eyeball movement. Vocalics is para-linguistic cues, such as vocal tone and intonation. Each of these conveys meaning and, with humans, the interpretation is not always accurate (Gabbott & Hogg, 2000).

Nicholas, Hill, Thompson, and O'Brien (2004) say that silence can allow clients to reflect upon their thoughts and feelings, exert pressure to communicate, and convey respect or empathy. This silence allows therapists to observe body language, conceptualize clients, examine feeling and thoughts in relation to the client, & convey empathy. To an observer this time may seem uneventful, however, from the therapist point of view this is an active time (Nicholas et al., 2004). Just as silence promotes increased empathy, positive interactions between children and animals leads to increased empathy (Gullone, 2003).

### *Effective Communication Signals*

Humans and horses can also understand each other. For example, Mills and Nankervis (1999) say if someone who is fearful of horses approaches a horse, the person will communicate that fear and

send recognizable signals to the horse through his or her body language and by smells that are released that are not detectable to humans. This will likely put the horse on edge as they try and evaluate the source of the fear, and they may potentially act out themselves (Mills & Nankervis, 1999). Effective communication is dependent on the receiver receiving the correct message. An exchange of information is essential to the process of negotiation of understanding the communication of another (Schweitzer, Brodt, & Croson, 2002). In the case of the person having a fear and causing the horse to panic, Mills and Nankervis (1999) contend that the message was misunderstood. When working with horses, it is important to have an understanding of their world of communication and be conscious of the signals and scents humans are sending in order to provide the best environment possible for both species (Mills & Nankervis, 1999).

Horses are said to have a sixth sense that is unexplainable (Bush, 1992; Davis, 1998; Hartley-Edwards, 1991), and a bit controversial (Bush, 1992). This sixth sense is an intuitive response or reaction to a situation that is not apparent to others. For example, horses have been known to stop and refuse to go despite their riders seeing no obvious reason for this fear or stubbornness. Later, investigation would show there was a danger ahead, even to the extent of a tree crashing to the ground seconds later, which would have crushed the horse and rider had they been progressing as normal (Davis, 1998). Another example is an

awareness of approaching weather conditions, and a sensitivity to magnetic fields, such as acting out before an earthquake (Bush, 1992). According to Hartley-Edwards (1991) it has been said that horses are reluctant to pass documented haunted places. Horses also have the uncanny ability to sense impending danger in a variety of situations. They are also hyper-sensitive in detecting the moods of their handlers and riders (Hartley-Edwards, 1991). This sixth sense could also be referred to as intuition (Kohanov, 2003).

Horses use sight and body language as a form of communication with each other, as well as other species. Body language includes the position, posture, and movements they make. Horses can also pick up on what other horses and humans are feeling by voice tones, smell, taste, and by touch (McBane, 1999). Horses are extremely sensitive to subtle changes in the body language of their companions. They tend to generalize their communication to include humans around them. They also react to humans body language whether it is intentional or not (Waran, 2002). Humans also notice changes in body language. The most common experience that humans can use to relate is through the use of gestures Koschmann and LeBaron (2002) describe gestures as body movements that are a clear part and parcel of an individuals open acknowledged intention to convey meaning. Further, they discuss that gestures are also appear spontaneously and give a deeper clue as to the internal state of the individual as if a window into the mind (Koschmann

& LeBaron, 2002). Horses communicate through body language, voice, touch, and smell (Bush, 1992; Davis, 1998).

According to McBane (1999) horses give humans, and other animals, several signals utilizing their body language to communicate meaning. Asking a horse what they are thinking or how they are doing is not as easy as communication with language. Just as people can communicate through non verbal communication a person paying attention to the horse and watching and listening closely can gain understanding through the horse's body, ears, eyes, tail, nostrils, legs, sounds, neck, facial expressions, and/or a combination of signals (McBane, 1999).

### Horse Behavior Translations

#### *Horse Behavior Translations of the Body*

Morris (1988) contends that the body of a horse can give us information about the messages the horse would like to communicate. The body check as described by Morris (1988) is the time when a horse uses its body to stop another horse or human from going in a direction. This is the horse's way of saying, "I'm in charge." Another body translation is the shoulder barge. This is more intense than the body check and Morris states this happens when the horse not only stands in the way but also makes contact and pushes into the other animal. This is an attempt to intimidate, still saying "I'm in charge." Finally, what

Morris states is known as the rump presentation is when the horse swings around and offers its rump to its rival. This is a defensive display basically saying, “Stop annoying me or I will kick you” (Morris, 1988 p. 29).

### *Horse Behavior Translations of the Ears*

Humans move their eyes to attend to an alerting stimulus; horses attend by pointing their ears (Saslow, 2002). Horses are finely attuned to the environment they live in; they have to be in order to survive. As a result they have a very keen sense of hearing, which enables them to detect the presence of possible predators in the vicinity (Bush, 1992). This highly developed sense of hearing and can detect a wide range of sounds both high and low pitches that are beyond human detection (Davis, 1998). The ears of the horse serve a dual role: they are an early warning system and a means of communicating (Bush, 1992). Several horse researchers agree that when a horse’s ears are pricked sharply forward, this means that the horse has its attention focused directly ahead on something interesting, amazing, or alarming. For example, when working with people the horse will point his or her ears towards the person they are paying attention to (Hartley-Edwards, 1991; McBane, 1999). Horses can rotate their ears independently through 360 degrees to hone in on specific sounds (Davis, 1998). When the pricked ears are

stiffly erect, and pointed in the direction of a sound it means the horse is startled, alert, or interested (Morris, 1988).

When the ears are held to the side and relaxed and maybe dozing it indicates they feel off or are listening intently to something, but the direction of the sound cannot be determined. Also, when the ears are pointing loosely backwards this means that the horse is paying attention to something behind or on top, or feeling ill (McBane, 1999).

When the horses ears are clamped hard back and down, researchers would interpret this as communicating aggression, pain, or trying his/her utmost at a task (Davis, 1998; McBane, 1999). Davis (1998) and McBane (1999) also point out another behavior to notice is called "airplane ears"; this is shown when the ears flop out laterally with the opening facing down, which can mean, loss of interest, fatigue or lethargy. Drooped ears, which are more extreme than airplane ears can be identified by observing the ears hanging more loosely. This can translate that the horse is very dozy or in pain. They also discuss a similar behavior, drooped backwards ears this usually only happens when the horse is being ridden. It is the same as drooped ears, but the opening is directed back towards the rider. This is a sign that the horse is submissive or fearful towards the rider. Some warnings are flicking erect ears, which communicate that the horse is on the verge of bolting in terror. Lastly, Morris (1988) discusses there are pinned ears, which

can be viewed as flattened ears that are leaned back against their head. This is a sign of aggression, anger, and dominance (Morris, 1988).

### *Horse Behavior Translations of the Eyes*

Horses receive visual information differently than humans do. Their vision is monocular which means single eyed (McBane & Douglas-Cooper, 1990). Horses have a much wider visual field; the quality of the horse's vision, compared to humans, is not good over most of this area (Saslow, 2002). If horses were examined by the same standards as humans they would be considered near-sighted. They have good vision when subject is close to them but, distances are blurred (Lyons, 2003). They can see in dim light although they are unable to distinguish colors, they see in shades of light and dark gray (Davis, 1998). With light, they are able to distinguish colors, though they have a difficult time distinguishing blues and violets (McBane & Douglas-Cooper, 1990). Eye placement on the side of the head gives horses a broader visual field than humans. The placement of the eyes on the side of the head give horses a visual field of almost 360 degrees around. Horses have a blind spot of about 10 degrees directly behind them (Lyons, 2003). Because of this blind spot, it is important to be cautious not to sneak up behind horses. They can not tell what is behind them, and he or she might get scared and lash out and kick. Horses also have a small blind spot directly in front of their heads because their eyes are set so far to the sides (Grandin

& Johnson, 2005). For sight, horses often rely on humans to guide them although they observe body language of others around them to collect information, it does not appear that their eyes as a method of communication (Saslow, 2002). When observing the eyes of the horse if their eyes are bright and alert, one can assume that the horse is interested and in a good mood (McBane, 1999). Bush (1992) states that if the eyes are half closed it may be because the horse is relaxed or indicate submissiveness. Fully closed eyes may be a sign of exhaustion or pain. When eyes are open wider than normal this is an indication of fear, anxiety or apprehension. When the eyes are open very wide and possibly some white is showing this can be a sign of anger or aggression (Bush, 1992).

#### *Horse Behavior Translations of the Tail*

The tail of the horse serves a very practical function as a fly switch in addition to providing a useful key to the horse's mental state (Bush, 1992). For example, when the tail is in the down position, this is a sign of a relaxed horse. It should not be dropped low, but hanging in a natural position (Waring, 2003). When the tail is held up high, it is a sign that the horse is alert and active (Morris, 1988), this can also indicate the horse is startled by something (Bush, 1992). If the tail is dropped low, this is a sign that the horse that is sleepy, exhausted, in pain, experiencing fear, or feeling submissive. Or when the tail is tucked

between its legs and rear end, this signals the horse is acutely afraid, usually of another horse (Waring, 2003).

The tail of the horse can also give the human companion, as well as other horses, an indication of what the horse wants from them. When a horse's tail is flicking back and forth and is being held up high, this give the message of "let's play." The message of the tail can also be a warning. For example, a powerful tail swish is a warning it can be so strong it often makes a whistling sound as the tail swishes through the air and can be powerful enough that if a person is hit by the tail it could draw blood. This is a very angry and annoyed horse and is often followed by a kick as the temper escalates (Morris, 1988; Waring, 2003). This powerful tail swish should not be confused with a rapid swishing movement of the tail in various directions, which often is a response to irritation usually from insects or other pests. On the other hand, if no pests are present, this can also signify the horse is irritated, or anxious (Morris, 1988).

#### *Horse Behavior Translations of the Nostrils*

The nostrils of the horse may be wrinkled to show disgust, and are flared when excited or feeling some intense emotion. This is instinct to prepare for flight if necessary (Bush, 1992). It has been found that when a horse's nostrils are flared open and circular, horse scholars recommend that humans should pay attention to the message. This is a

show of great interest, alarm, excitement, or fear. Often, when the horse is taking in a lot of information, the nostrils will be flared open (McBane, 1999). A nudging of the nose can be a sign of the horse seeking attention or, at the opposite extreme, may actually lunge at another horse or person in an aggressive manner, possibly when the horse is about to bite. Both gestures are an assertive statement (Bush, 1992).

### *Horse Behavior Translations of the Legs*

The legs of the horse also communicates important messages. When a horse is pawing the ground, as viewed by the horse putting one front leg scraping the ground; this is a time when the horse is trying to see beneath the surface or testing resistance. Emotionally it can mean the horse wants to physically move forward or, in therapy, the person needs to give deeper emotion than what is on the surface (Bush, 1992; Morris, 1988; Waring, 2003).

Knocking and stamping behaviors also give messages to the human companion as well as horse companions (Morris, 1988). This behavior is a modified from kicking. It is a mild threatening gesture when the horse is irritated (Bush, 1992). Knocking is raising and lowering of a hind leg and making a forcible tapping sound on the ground. Stamping is an up and down movement with one of the front feet making a forcible tapping sound on the ground. Both are a mild protest to whatever is happening around them, sometimes referred to as

a temper tantrum. For example, if they are being saddled and do not want to be, they will use knocking or stamping to protest (Morris, 1988). This is also common when eating; they may be knocking or stomping to show an objection to being crowded by other horses. Another example of when a horse will display knocking or stamping is if they are irritated by insects or other stimuli, such as a hand on their belly or flanks (Waring, 2003).

When working with horses, two more leg behaviors are important to be aware of. The front- and back-leg lift. The front-leg lift is a threat, and is the equivalent of a human shaking a fist, as if saying “don’t provoke me” (Bush, 1992; Morris, 1988). This is often done for only a moment to get the other horse or human to withdraw (Waring, 2003). The back-leg lift also signals a threat and translates to the companion that a forceful kick is on the way if things get worse (Bush, 1992; Waring, 2003).

### *Horse Behavior Translations of the Sounds*

Just as humans often use sound to communicate with each other, horses use sound to communicate. The most important sounds that horses make are the snort, squeal, greeting nicker, courtship nicker, maternal nicker, neigh or whinny, roar, and the blow.

The snort is a powerful exhale of air, lasts less than a second, and has an audible flutter sound created by the nostrils. It can be heard up

to 50 yards away (Morris, 1988), and is a show of conflict between curiosity and fear (Bush, 1992; Morris, 1988). The message translated could be, "There may be danger here" (Morris, 1988 p.16). Snorts can also often be heard when the horse is restless and yet constrained, such as by a human handler or barrier (Waring, 2003). Snorting can also indicate wariness.

The squeal is performed with a closed mouth; sometimes corners of the mouth may be slightly open. This is a high-pitched sound that can be as short as .1 seconds or as long as 1.7 seconds. The squeal is made when the horse wants the person to stop what he or she is doing or indicated that it is provoked (Morris, 1988) and retaliation will result if pushed any further (Bush, 1992). The shorter the squeal, the milder the protest (Waring, 2003).

Horses have three different nickers. The greeting nicker is a low-pitched, guttural sound, and when close to someone or another horse the sound can be heard up to 30 yards. It typically means come here in a friendly way. This is a welcome a horse would use with another horse or human. Often this sound is made when an owner is bringing food. In that case, it could be interpreted as begging; (Bush, 1992; Morris, 1988) however, it is more accurately translated as anticipation (Waring, 2003). The courtship nicker is a sound made by a stallion approaching a mare as a greeting. To a human it could be translated as, "hello beautiful!" It is often accompanied by vigorous head nods, mouth shut and nostrils

flared. This is a sexual hello (Morris, 1988; Waring, 2003). A mare usually gives the maternal nicker to her foal. It is a soft, barely audible sound and is usually given to get the foal to come closer.

Another important sound made by horses to communicate is the neigh, which is also called a whinny (Morris, 1988). This sound starts as a squeal, than ends as a nicker. This is the longest and loudest of horse calls lasting an average of 1.5 seconds and it can be heard over half a mile away (Bush, 1992; Morris, 1988). With other horses, this helps the horses stay together. Each horse has his or her own distinct neigh, and the horses and humans with regular contact can tell the difference between horses by the neigh alone. This is a request for information such as, "Where are you," "I'm over here, is that you," or even a response such as "Yes, it's me. I hear you" (Morris, 1988 p. 19).

A sound that is rarely heard by human ears is the roar according to Morris (1988). This is a high pitch sound that almost sounds like screaming. This is during a fight between horses usually in the wild and is a rare sound in captivity. The roar can signify an intense fear and/or rage (Morris, 1988).

Finally, a sound that is often heard is the blow which is a loud exhalation of air through the nostrils while the mouth remains closed. It expresses curiosity, good mood, or a signal of well being (Morris, 1988). Several short blows may indicate that an intruder has been detected (Waring, 2003).

### *Horse Behavior Translations of the Neck/Head*

According to Morris (1988) the behaviors displayed by the head and neck movements of a horse can also translate into messages to humans and other horses. First, the head toss is when a horse is shaking its head around. This is a response to irritation, often because of insects; this is also done in response to irritation from humans as well. Next, head bobbing is when a horse ducks the head up and down repeatedly. This is usually done to increase the range of vision to better understand an object they are looking at. There is also the head wobble, which is when the nose tip of the head twists from side to side while the top of the head remains relatively still. This is self-congratulatory or signifies the horse is ready for action. Another movement to watch for is head thrusting which is a forward movement of the head, often accompanied with biting which is a self-assertive action (Morris, 1998). Finally, head nudging is a movement of the head that gives a very important message to humans. This is displayed by a mild nudge with mouth closed and is often the horse's way of saying "come on, let's get on with it" or a "what about me". This is a way of asking for human attention (Morris, 1998; Vogel, 1995).

### *Horse Behavior Translations of Facial Expressions*

Snapping, according to Morris (1998), is a behavior that is expressed when the horse opens its mouth, draws back the corners, and

then exposes teeth, while opening and shutting the jaw. This is a social message that says, "I mean you no harm. Please don't hurt me" or "I am friendly." Usually this behavior is not seen after the age of three.

Another facial expression that helps to translate behaviors is known as the bite threat, which is the opposite of snapping. The jaw is held tensely open with teeth fully exposed, and is a warning that they are about to bite. This is in response to fear, anxiety or pain experienced by the horse. Drooping lips is a noticeable facial expression that can be seen when the bottom lip is sagging down; and it means the horse is sleepy (Morris, 1998).

#### *Horse Behavior Translations of the Mouth*

Horses use their lips and mouths for a variety of things beyond eating. According to Lyons (2004), they nose around using their muzzle as humans would use their hands to investigate their surroundings. They also use the mouth to communicate, for example they communicate aggression through biting. In fact, biting is the most aggressive action a horse will show a companion (Lyons, 2004). The most common behaviors of the mouth are licking and nibbling. Both are good signs; yet because of the power of horses, these behaviors can be misunderstood by humans. Licking is done by horses to groom each other and is a sign of caring and affection. Nibbling is also a sign of affection. When nibbled

on by a horse, they are telling the companion that he or she belongs and is a sign of acceptance (Morris, 1988).

#### *Horse Behavior Translations with Combined Signals*

According to McBane (1999), the horse is doing well, and feeling confident when there is an interested alert look to the whole body, the eyes will be soft and interested, the ears will prick readily in the direction of what is interesting, the head will be held up normally. The horse will stand square, or maybe with a hind leg relaxed, with the tail mobile and relaxed, and maybe up and out a little. Usually the horse will want to sniff people and will either approach or stand still when seeing the person.

Aggression is shown by the ears back in warning or attempted intimidation, and the horse may approach the human with head down, muzzle outstretched and an expression in his or her eyes varying from warning to vicious. Their nostrils may be wrinkled up and back, and their teeth may even be bared. The tail will be up or may be swishing, about and the general message is, "you're not welcome."

If a horse is sick, depressed, or bored the head will be level with the withers or lower, ears will be flopping to the sides or maybe slightly back, the eyes will be dull, tail will be drooping between the buttocks, and the horse will have a general air of unease (McBane, 1999).

### *The Signals Human Senses Can Not Read*

According to Mills and Nankervis (1999), horses use chemical signals to communicate to each other that humans are unable to smell. Hartley-Edwards (1991) state the humans unconsciously communicate with horses by the smells they exude. For example, frightened people or aggressive people give off odors that reveal their state of mind to the horse causing them to react to the human depending on the message the horse is receiving (Hartley-Edwards, 1991) The olfactory system is dependent on the ability to detect and interpret airborne chemicals. Horses have a long nose that provides a large surface area, accompanied by a complex olfactory system, which gives them the ability to smell things that humans cannot. Humans often overlook the importance of chemical signals in other animals since, when compared to most domestic species, we have an extremely poor sense of smell (Mills & Nankervis, 1999). The sense of smell is important to horses, enabling them to detect predators, and stallions to tell when a mare is coming into heat (Bush, 1992). Davis (1998) also points out that horses are able to detect our inner emotions, such as fear, by the particular chemical scent the person exudes. This seems to explain some of the mystery behind what is happening with Equine Assisted Therapy (EAT), as the horses are able to identify internal states.

*Horse Behaviors Translations as Applied to Therapy Horses*

In a personal interview with Veronique Matthews (2005), executive director of a nonprofit organization providing therapeutic interactions to the community, additional behaviors seen in therapy horses were discussed. Matthews has a certification process for miniature horses that will be involved in therapy. She has trained them and observed common behaviors that communicate messages to the facilitator that would not otherwise be observable; she and the author call this Equine Resolution Mapping (ERM). ERM is the process of communication done by observing body language of a horse while someone is holding the lead. This body language is then translated by the facilitator into words describing the inner state of the person holding the lead. The horse is able to mirror what the person holding the lead is feeling and the horse will express with their body language what the person needs to work on, and/or show the person how it feels to be about them as the horse mirrors their behaviors.

During the interview Matthews confirmed the behaviors already discussed and gave some additional messages that are essential to understanding her at-risk youth program and the horse behaviors related to the program (Veronique Matthews, personal communication, February 21, 2005). These behaviors have also been observed by the author.

Each of the horse behaviors interpretations that are going to be discussed has been informally validated by the youth involved in an at-risk youth program. Many of the boys in this study have been sexually abused and all are sexual abusers themselves. Ms. Matthews has watched the horses over time with a variety of children and adults. She has stated that in her experience the horse communicates to the facilitator or therapist an internal state of the client with the horse's body. For example the horses will cross in front of the client and stand in front of them, this typically happens when the internal process is focused on excuses or the client is thinking of emotional or physical obstacles that are in their way (Veronique Matthews, personal communication, February 21, 2005).

Another common example is when the horse is ignoring commands, such as "step up" which is the command to walk. This communicates to the facilitator that the client is reluctant to work with horse or the facilitator in order to move forward in their therapy. A possible dangerous communication for the facilitator is kicking (Veronique Matthews, personal communication, February 21, 2005). Kicking is often the horse's way of telling someone to go away (Bush, 1992). Ms. Matthews stated that the miniature horses will try to kick the facilitator when the boys are projecting to the horse that they want the facilitator to go away. The facilitator can avoid actually feeling the kick if they stand close to the horse or in front of the horse. Ms. Matthews

interprets this behavior as communicating that the facilitator is getting close to issues that the client does not want to face. She also stated that this often happens in response to a line of questioning that the client is not ready to face. The horse will typically warn the facilitator first with a flick of the tail, which can be interpreted as a mild “don’t bug me now.” This lets the facilitator know in advance that the client does not want to deal with more questions that may be getting to close to an issues they do not want to deal with (Veronique Matthews, personal communication, February 21, 2005).

Another full body communication that Ms. Matthews has observed is when the client is talking to the horse about their abuse and the horse turns to the right, this indicates to the facilitator the abuser was a male, and if they horse turns to the left the abuser was a female. Other communications happen with the turning of the horse as well. If the client is being questioned by the facilitator the horses act as a truth detector, in a way (Veronique Matthews, personal communication, February 21, 2005). Unlike humans, horses have no real capacity for lying, although they may attempt to call our bluff on occasion (Bush, 1992). For example it has been observed that when questioning the boy, upon responding, if the boy is not telling the truth, the horse will turn to the right. If the boy is telling the truth the horse will face straight forward. It has also been observed that when the questions of the facilitators are on the mark that the horse will turn their head to the left.

This may be a result of female facilitators (Veronique Matthews, personal communication, February 21, 2005).

At times, clients are pulled around the yard by the miniature horses. When this happens, facilitators interpret that the client is feeling a lack of control in their own lives. Pulling strongly to the left and right also holds the male/female significance according to Ms. Matthews. If being pulled strongly and consistently to the right, it is interpreted as a male control of the client, making the client feel out of control and to the left it is interpreted as a female. If the pulling is strong yet consistently forward it seems to indicate that they feel some responsibility for the loss of control (Veronique Matthews, personal communication, February 21, 2005).

Commonly, when clients are trying not to cry or be “masculine” or “macho” when working with a male horse, the penis will drop and the horse will get a partial erection. This is not to be mistaken for sexual behavior, but interpreted as a response to macho behavior (Veronique Matthews, personal communication, February 21, 2005).

Horses will often nip at the clients clothing or skin, this happens, according to Ms. Matthews, when the clients are thinking about being a martyr or wishing revenge on others. This often signals to the facilitator that the client is currently in the process of an internal self abuse. When the horse gives more than a nip and actually bites without being provoked (almost enough to bruise the skin), this conveys to the

facilitator that the client was thinking about their abuser. When asked about their thoughts, the clients often comment that they were thinking of the fear they have the abuser will harm them again. Another mouth behavior that has been observed is that when the horses nip the client below the knee, clients state that they are thinking about an abuser who is younger than they are. When they receive a nip above the knee, this often signifies to the facilitator that the abuser is older than the client. Lastly, when the horse licks his or her lips this is interpreted as understanding of what was just asked of them. When the facilitator is giving feedback to the client or when the therapist is on track with their analysis of what is going on with the client the horse will lick their lips to convey that the facilitator is right on target (Veronique Matthews, personal communication, February 21, 2005).

The horse also communicates to the facilitator with sound. According to Ms. Matthews, when the horses blow, this is a deep sigh or relief or a release. This often happens in response to the client talking about the pain of something horrible that has happened to them. Another common sound heard when utilizing miniature therapy horses is a combination blow and snort. This communicates a challenge, saying to the client, "you are not being honest with yourself," which in turn communicates to the facilitator that the client is not being honest with themselves. When the horse makes sounds related to heavy breathing this is typically a response that reflects the stress of the client. Yawning

is a reflection of nervousness in the client. The yawn seems to allow the horse to release the nervousness (Veronique Matthews, personal communication, February 21, 2005).

At times, the horses will cry and tears will stream from their eyes. When this happens it is typically interpreted as the client thinking of a memory that evokes fear, yet the client is not able to actually release tears themselves. It is possible the horse is crying for the client. A common body communication that the miniature therapy horses will do to get the facilitator/therapist to come over to the horse and the client is a deep roll of the neck from one side to the other ending in a nodding motion. This is the horses way to telling the facilitator that the horse needs help. This sometimes happens when the client has a history of abusing animals and the horse does not feel safe. Regardless of the reason, the horse does this when he or she wants the facilitator to come and help the horse feel safe (Veronique Matthews, personal communication, February 21, 2005).

#### At-risk Youth Population

Adolescence is a difficult time of transition and even well adjusted and happy youth can become distressed during this time (Windle & Mason, 2004). Larson, Moneta, Richards, and Wilson (2002) describe that this is a time of changes, both biological and emotional; it is a time of developmental transition to adulthood. Adolescents face issues, such

as transitions to middle or junior high school, changing peer expectations, increased life stressors, and changing relationships and roles within the family environment. Internal changes that are out of their control are transforming them as well, such as puberty and changes in cognitive abilities. Even the healthiest adolescents often experience a significant downward trend in emotional states (Larson et al., 2002).

Adolescences deal with physical, emotional, psychological, moral, spiritual, and social tasks that can affect their self-concept (Feldman, 2003). The formal operations stage in Piaget's theory of cognitive development is the stage during adolescence. Piaget proposes this is the time when humans develop the ability to think abstractly (Piaget & Inhelder, 1958). This stage usually begins around the age of twelve. Conversely, Piaget proposes that adolescents do not fully settle into this stage until the age of fifteen. During this stage, their inner world begins to revolve around themselves, and their self-concept can be greatly affected by what happens in the beginning of this stage (Feldman, 2003).

Two major features of this stage are *hypothetico-deductive reasoning* and *propositional thought*. Hypothetico-deductive reasoning means that when adolescents are faced with a problem, they start with a general theory of possible factors that might affect the outcome and deduct from it specific predictions about what might happen. Then they test these hypotheses in an orderly way to see which ones work in the

real world. Propositional thought is when adolescents can evaluate and reason logically through verbal statements without referring to real-world conditions. Abstract thinking comes with new problems such as argumentativeness, which arises as adolescents question the values being placed on them (Berk, 2001, Osherson & Markman, 1975).

Not everyone automatically reaches the formal operations stage of development. Piaget suggested that everyone attains this stage, but does not always apply the reasoning they are capable of on a formal level because things are not of interest or vital importance to them. Cross-cultural research found that some people fail to attain formal operations because they may lack exposure to the kind of schooling that stresses logic, mathematics, and science, experiences Piaget believed help children reason at the formal operational level (Shaffer, 1999).

### *Physical Tasks*

During adolescence, puberty begins: girls start puberty on average around age 11 to 12 and boys begin on average at 13 to 14. During puberty, girls and boys grow and mature as their bodies change. In previous stages of physical development, children are not aware of the changes happening to them as they grow (Berk, 2001). They experience a growth spurt and body proportion changes which are primarily because of sex hormones. Adolescents are often sleep deprived because they get less sleep than they did previously (about 7 to 8 hours of sleep), but still

need on average 9.2 hours of sleep (Carskadon, Viera, & Acebo, 1993). This lack of sleep can lead to daytime sleepiness and lower performance in school (Link & Ancoli-Israel, 1995)

For the first time in development adolescents may be found spending more time in front of mirrors grooming and looking at themselves. Counselors need to be aware of the physical development of adolescents, the consequences, and the impact of early and late maturation.

*Physical Tasks Specific to Boys.*

According to Feldman (2003), there are advantages and disadvantages of physical development for boys that mature early. Boys that mature early have more advantages to be successful in sports because of their larger size; they tend to be more popular and develop a more positive self-concept. The downside for early maturation in boys is they are likely to have trouble in school and are more likely to be involved in delinquency and substance abuse. This is attributed to their larger size as well, in that they seek out older peers who may involve them in activities they are not ready for. The long-term implications for early maturing boys are that they are usually more responsible, conforming, and lack humor as they become adults (Feldman, 2003).

Adolescent boys who mature late will be seen as smaller, weaker, less athletic, and less attractive to their peers. They may have trouble

getting dates because of the social implications in Western society that boys should be taller than the girls that they date. This can have a negative impact on their self-concept. On the positive side, late maturing boys tend to be more assertive, insightful and are more creatively playful than early mature's later in life (Andersson & Magnusson, 1990; Feldman, 2003; Livson & Peskin, 1980).

### *Physical Tasks Specific to Girls.*

There are disadvantages and advantages of physical development for girls who mature early according to Feldman (2003). Since girls tend to mature earlier than boys, early maturing girls often feel uncomfortable in their bodies as they develop. For example, breast development before their peers can be uncomfortable because they are different than their female peers who have not yet developed and may be picked on as a result of their changing bodies (Feldman, 2003). The advantage to maturing early is they tend to be more sought after for dates and are usually more popular, which enhances their self-concept. This can also become a disadvantage as they may not be socially ready to deal with their physical changes and may suffer psychologically in dating and social situations they are not mature enough for (Simmons & Blyth, 1987). Late maturing girls tend to be overlooked for dates, but once they catch up to the other girls they then tend to be more satisfied with

themselves and their sexuality, and suffer less emotional problems (Feldman, 2003).

Counselors should be aware of the impact of self-concept during the adolescent years. Knowing the challenges that are being faced during this significant time of physical development can aid counselors in understanding what the client is dealing with.

### *Emotional Tasks*

Entering the formal operational stage comes with a new form of egocentrism, which is the inability to distinguish between abstract perspectives of themselves and others. Emotional tasks are encountered as the adolescents begin to take notice of their own thoughts, opinions, and judgments about themselves. Then, they begin to wonder what others must be thinking of them (Berk, 2001).

### *Imaginary Audience*

The imaginary audience is when adolescents see themselves as always being on stage (Elkind & Bowen, 1979; Vartanian, 2000). Their self-concept is that they are the focus of attention everywhere they go and that others are concerned with their every action. This could be mistaken for narcissism without development knowledge of the emotional impact this has on them. This is not a fun experience for most adolescents as it leads to a self-consciousness about themselves. This experience makes them constantly on alert to avoid of embarrassing

behaviors. Counselors need to remember that a critical remark from an adult can be mortifying since they are very sensitive to criticism.

Counselors can help by exploring the idea that everyone is a blend of virtues and imperfections (Berk, 2001). The imaginary audience also explains the behaviors of looking in the mirror for extended periods of time as they fear that everyone else will be just as critical of them for their appearance as they are on themselves (Shaffer, 1999; Vartanian, 2000).

### *Personal Fable*

Adolescents believe that the focus of the world's attention is on them and that everyone is thinking about them, and they tend to develop an inflated opinion of their own importance. They begin to believe that they are special and unique and that no one else could possibly understand what they are going through emotionally. This can be very lonely (Elkind, 1994). They tend to think the things they do are either larger than life or so horrible no one would understand (Vartanian, 2000). A crush that is not reciprocated can be the most devastating thing in the world, and when any adult tries to comfort them, they may respond with a comment that the adult has no idea what it is like to be in love (Berk, 2001).

These two types of self-centered ideations are used to account for a great number of typical adolescent behaviors that are of some concern to

adults. The construct of the personal fable, for instance, is invoked to explain the reckless behaviors that adolescents engage in, such as unprotected intercourse or driving under the influence. Although many scholars of adolescence seem to accept the claim that adolescents construct imaginary audiences and personal fables, there is less consensus about the theoretical explanation for why they do so (Vartanian, 2000). Greene, Krumar, Walters, Rubin, and Hale (2000) found in their research that there is a consistent relationship between the personal fable and egocentrism with regard to adolescents becoming involved in risk-taking behaviors.

### *Weight Concerns*

Many children and adolescents have developed poor eating habits and inactive lifestyles, so weight concerns are becoming increasingly important (Bauer, Yang, & Austin, 2004). Research has found that both adolescent boys and girls with weight concerns in early adolescents often will become involved in risky behaviors in response to their self image or develop problems with depression and low self-esteem. They also develop a perceived view that they have low competence with regard to romantic relationships. Counselors need to be aware of this impact and help adolescents who are not actually overweight to evaluate themselves realistically (McHale, Corneal, Crouter, & Birch, 2001).

### *Moral Tasks*

Abstract thinking allows adolescents to view possibilities they never thought of before. They can now imagine alternative family, religious, political, and moral systems, and they begin to explore them. They start to question who they are and what to believe (Berk, 2001). The development of a moral identity is one of the most important periods of adolescence. The moral identities that adolescents form can determine if they become someone who will contribute to the welfare of their prospective community. Adolescents are faced with the developmental task of becoming a moral person that is accepted by society or not becoming a moral person that is not accepted by society (Hart, Atkins, & Ford, 1999).

Adults can help with poor self-concept of an adolescent by arranging for them to do something that will benefit others using a skill they have. For example, if they are good at putting a halter on a horse, they may tutor a younger child who is struggling or do something special for someone else (Thompson, Rudolph, & Henderson, 2004). Adolescents tend to make moral decisions because of possible severe consequences. With this said, it is important to remember they can think things through at this stage and their action or inaction concerning moral judgments comes from an internal state of intentionality (Singer, 1999).

### *Spiritual Tasks*

As discussed earlier, abstract thinking allows adolescents to view new possibilities and explore new ideas. Often, this includes exploration of their religion, according to Quackenbush and Barnett (2001). As children, many do not have a critical acceptance of their religious heritage. However, when they enter adolescence, they are faced with the task of critically evaluating their previously accepted religious beliefs. This usually happens as they become more aware of other religious practices and struggle to find meaning in their lives during older adolescence.

The implications of religious exploration during adolescence are that adults in the support system may have trouble understanding this questioning of beliefs, since religious themes are more salient to self-concept in adulthood. It is this period of exploration that the teenager may find challenging, and this should be recognized as a part of growing up. Guilt placed on adolescents by adults for questioning their values during this time can provoke a negative self-concept (Quackenbush & Barnett, 2001).

### *Social Tasks*

During the formal operations stage, adolescents are faced with the task of joining and creating peer groups for social support. Many, but not all, adolescents are part of a peer group (Terrant, 2002). According

to Johnson and Johnson (2000) the task of developing sexuality can have social implications when an adolescent is gay or lesbian. Further, in our society, there is a social stigma associated with being different, and when being different means being gay or lesbian the adolescent faces additional challenges. Most experience an inner struggle that is only intensified by ridicule and rejection from their peers (Johnson & Johnson, 2000).

Terrant (2002) states that adolescents are impacted by being a part of a peer group and often have a higher self-concept when they are satisfied with their membership in their particular social circle. Those who are unsatisfied or rejected typically suffer from a lower self-concept. A considerable part of the adolescent's self-concept comes from being part of a group. They also tend to rate people in their own peer groups higher in social desirability than those who belong to other groups. It is important for counselors to keep in mind that social identity is maintained through social comparisons, both within their own social network and outside of it. However, their self-concept is more heavily influenced by the values held within their own social support system (Terrant, 2002).

Counselors need to keep in mind the social struggles of acceptance and support when they see gay and lesbian adolescent clients. They often suffer from feelings of social isolation, guilt, and loneliness that

often lead to escape- finding behaviors, such as alcohol or drug use (Johnson & Johnson, 2000).

### *Boys and Emotions*

Boys in western society are taught to avoid emotions, even those that arise from normal challenges (Beman, 1995). At-risk youth often are not reflecting on the outside what is happening to them on the inside. Horses are said to be effective as a co-therapist since they have the amazing ability to mirror exactly what the human body language is telling them (EAGALA, 2003). Often, when the client is complaining that the horse is stubborn or does not like them, the therapist can use that information to help the individual work to change something in themselves. Once the change has occurred the horse responds differently. This mirroring ability makes horses especially powerful messengers (EAGALA, 2003). This mirroring ability is similar to biofeedback, i.e., the horses show in an external way a person's inner processes. The horses can detect even the smallest involuntary physical reaction in humans that are a result of unconscious fears and anxieties (McCormick & McCormick, 1997). This can go unnoticed by a human who may be looking at outward signs that are defenses protecting internal pain.

When boys are not exposed to men who show emotion and caring for others and are exposed to male role models who are cold and do not

display caring behaviors, the message is often that dominance is the only way to have a relationship with girls. If boys are not taught empathy, they do not learn how to respond to rejection, and often respond by devaluating and degrading girls (Broidy & Agnew, 1997). This often causes a build up of anger in male youth, which may be released through violence, outbursts, hurting people, and destroying property (Mercurio, 2003). Kindlon and Thompson (1999) recommend six guidelines to help boys learn to handle their emotions instead of hiding from them: (1) give boys permission to have an internal life, approval for the full range of human emotions, and help in developing an emotional vocabulary so that they may better understand themselves and communicate more effectively with others; (2) recognize and accept the high activity level of boys and give them safe places to express it; (3) talk to boys in their language, in a way that honors their pride and their masculinity, be direct with them, use them as consultants and problem solvers; (4) teach boys that emotional courage is courage, and that courage and empathy are the sources of real strength in life; (5) use discipline to build character and conscience, not enemies; (6) model a healthy male emotional attachment, and teach boys that there are many ways to be a man (Kindlon & Thompson, 1999).

*At-Risk Youth – Issues They Face*

At-risk youth is a term used to describe youth who show signs of emotional or behavioral problems, and lack the support to navigate developmental tasks successfully (Keating, Tomishima, Foster, & Alessandri, 2002). Interventions with at-risk youth are important because poor mental health during adolescence has been linked with behaviors that can damage both physical and mental well-being in adulthood (Walker & Townsend, 1998).

McWeirter and McWhirter (1994) describe the five characteristics of at-risk youth. The first is critical school competencies, which are basic academic skills and survival skills. They report that a lack of skills in this area reduces the likelihood for a useful, productive life (McWeirter & McWhirter, 1994). When trying to teach the basic academic and survival skills, research has found that the best way to approach the at-risk youth population is through individual instruction. This individualized instruction provides them the best chance for success (Muse, 1998).

The second critical competency necessary for youth is the concept of self and self-esteem. If children do not have enough experiences with success, they engage in antisocial, deviant behaviors as an attempt to increase their self-concept. Third, is communication with others. When children do not learn the core abilities for social and interpersonal skills, they are not able to build and maintain positive relationships with peers or adults, which has been shown to increase risky behaviors. A fourth

competency is the need to have a healthy coping ability. At-risk youth tend to lack skills to cope with anxiety and stress, which in turn leads to responses that can lead them down a destructive path of acting out, denial, and withdrawal (McWeirter & McWhirter, 1994). Adolescents who have low coping skills are at high risk of becoming clinically depressed (Galaif, Sussman, Chou, & Wills, 2003).

The last competency that puts adolescents at-risk is control. High-risk youth often have a lack of control when it comes to decisions, the future, and life in general. They tend to lose control by not thinking through consequences. This also affects their ability to set goals and accomplish them, which then leads to feelings of having a lack of purpose (McWeirter & McWhirter, 1994). Adolescents often make ineffective choices in order to fulfill a basic need like belonging (Allen-Miller, Fitch, & Marshall, 2003). In therapy, at-risk youth report that they would prefer to stay connected with their caregivers and live with strict rules rather than have to survive in dangerous environments even though that is where they feel that they have more control over their lives (Ungar, 2004).

Not all adolescents can be spared being in high-risk families and/or high-risk environments (Springer, Wright, & McCall, 1997). Most at-risk youth grow up without the parents, guardians, relatives, friends, teachers, coaches, clergy and others that teach them right from wrong and demonstrate affection. Children are not born delinquent;

delinquency is learned behavior that is influenced by early relationships that shape thoughts and feelings about the world (Briscoe, 1997). This delinquency often develops within a family context, and the behaviors of at-risk youth are often reflecting issues they are experiencing at home (Dembo & Walters, 2003).

At-risk children often join gangs and turn to gang leaders for role models when not getting the family connection they need at home. Gangs lead to violence, alcohol use, and drug use. The drugs and alcohol are a way to escape from the misery in their lives. They often become involved in violence, which includes weapons such as guns.

The National Crime Prevention Counsel report (as cited in Briscoe, 1997) reported that in 1997, 15 children each day in the United States were killed by gunfire. Homicide is the second leading cause of death for youths ages 10 to 19, mostly by handguns. One of the most frightening statistics is that firearms kill more people between the ages of 15 and 24 than all natural causes combined (Briscoe, 1997).

Many of these at-risk youths end up in the juvenile justice system (Dembo & Walters, 2003), alternative high school programs, children's shelters, community schools for suspended students, court schools and ranches, and state detention facilities (Guerin & Lou, 1999). Since an increasing number of younger juveniles are being arrested each year, the problem is increasing. Many of these juveniles are suffering from interrelated problems such as drug use, educational deficits, emotional

issues, abuse, and neglect (Dembo & Walters, 2003). Those who have been abused or neglected as children were found to be 53 percent more likely to be arrested as juveniles (Briscoe, 1997).

Several issues are particularly important to consider in at-risk youth. Many adolescents survive this stage of development and become normal functioning adults. When problems such as drug use, educational deficits, emotional issues, abuse, neglect (Dembo & Walters, 2003), antisocial and violent activities, unprotected sexual activity (Carroll, Houghton, Hattie, & Durkin, 1999), poor literacy and academic skills, inadequate social, emotional, and behavioral skills, low self-esteem, limited language proficiency, ethnic or racial discrimination, impulsivity and poor judgment, limited or unavailable family support, antisocial peer influence, and a lack of positive adult role models (Guerin & Lou, 1999) enter the picture, they are at higher risk of living an unproductive or criminal life as an adult.

Interventions are needed in order to help increase the functioning of both the at-risk youth and their families (Hogue, Johnson-Leckrone, & Liddle, 1999; Poulin, Dishion, & Burraston, 2001). For example, spiritual interventions have been shown to help with subjective well-being, anxiety reduction, self-esteem, and physical health (Davis, Kerr, & Robinson-Kurpius, 2003). Other successful interventions include family restructuring (Briscoe, 1997; Hogue et al., 1999), seeking help from mental health professionals (Ciarrochi, Deane, Wilson, & Rickwood;

2002, Keys, Bemak, Carpenter & King-Sears, 1998), intervention programs (Springer et al., 1997), mentoring programs (Keating et al., 2002), behavior modification programs (Guerin & Lou, 1999), and responsibility-based programs (Hellison & Walsh, 2002).

Research shows that family interventions are the most successful (Briscoe, 1997; Hogue et al., 1999). However, many obstacles stand in the way of this type of intervention. Parental participation is not always realistic with this population, and if they can be recruited, they are not always the most captive audience. For research purposes, recruiting families can prove to be a very difficult task. Kubik, Lytle, and Fulkerson (2004) found that fifty-two percent of parents/guardians of adolescents in an alternative high school were only a little involved with their children. Some children live on ranches, in homes, and government facilities and do not have any parents or family members available to them (Guerin, 1999). Some researchers believe that a collaborative model is better, including family, school, and mental health professionals, working together in a consultation model to help at-risk youths and their families (Keys et al., 1998). A mentoring program accompanied by therapy is a very successful intervention to help reduce internalizing behaviors (Keating et al., 2002).

Reputation is important to people, and adolescents are particularly concerned with sustaining different types of reputations, according to Carroll et al. (1999). Further, if an at-risk youth had developed a

reputation represented by delinquency, nonconforming, toughness and aggression, acting in these ways becomes something that has to be sustained to maintain the reputation and confirm their credentials among the in-group. The youth's identity becomes wrapped up in this, and the cycle becomes difficult to break. It was found through a survey of both nondelinquent and at-risk delinquent youth that the at-risk and delinquent youth both reported that maintaining a non-conforming reputation was important to them (Carroll et al., 1999).

### *Worry*

Esters (2003), in his study on worry in adolescents, defined worry as "a chain of negative and relatively uncontrollable thoughts and images" (p. 280). Thirteen categories were chosen and then ranked from highest to lowest based on the survey results: (1) money matters; (2) choosing a career path; (3) change and transition; (4) academic schoolwork; (5) getting a job or getting into college; (6) starting work or college; (7) social efficacy; (8) home relationships; (9) self; (10) communication at home; (11) verbal communication; (12) opposite sex; and (13) information seeking (Esters, 2003). Each of these worries and many more can affect youth and cause stress. Teaching at-risk youth how to handle stress can help them to deal with their emotions and mental well-being. Some activities that have been found to reduce stress are breathing exercises, Tai Chi, yoga, creative visualization, guided

imagery, and cognitive skill development (Rollin, Arnold, Solomon, Rubin, & Holland, 2003).

It is important to ask for help when help is needed, but Ciarrochi et al. (2002) found that adolescents who need help the most are the least likely to seek it out. They surveyed 137 adolescents from 16-18 assessing social support, emotional competencies (the ability to define and identify emotions), and intention to seek help from both professional and nonprofessional sources. It is often assumed that people with low emotional competence would seek help because they feel less capable, however, this is not the case. This may be attributed to the helplessness that is often felt with low emotional competence. It was found, that they are less likely to seek help from family and friends than they are with mental health professionals. Seeking and receiving help from mental health professionals can assist in the reduction of distressing psychological symptoms. Unfortunately few who experience significant psychological distress actually seek out the professional help that they need (Ciarrochi et al., 2002).

### Description of Therapeutic Settings

#### *Residential Treatment Facility*

The adolescent males participating in this study live at a residential treatment facility in central Texas. The school consists of five campuses. The campus where the clients reside focuses on behavior

modification and therapeutic interventions. The average time the adolescent males remain residents is from 12 to 15 months, depending on their personal progress in the program.

Private placements into the facility are accepted, however, many of the placements are from Juvenile Probation and Children's Protective Services. This facility has also teamed up with Hearts and Hooves to provide the boys treatment with equines.

### *Middle School*

Five adolescent males from a central Texas middle school behavior class also participated in the study. The only requirement was the children needed to have parent approval and be in the behavior class. The miniature horses visited them on the last day of school. Both girls and boys participated, however, data was only collected on the males.

### *Hearts and Hooves*

The organization that supplies the miniature horses, enclosed environment, equine specialists, and volunteers is Hearts and Hooves. Hearts and Hooves was founded by Veronique Matthews in 2001. She was undergoing painful cancer treatment when she went to a neighbor who raised miniature horses. The neighbor had a foal with dwarfism and club feet. Veronique was given a young horse. She named him Toby and saved him from being euthanized. Euthanization is often done on dwarf horses since the quality of the animals' life is unknown. She worked to

strengthen and straighten his legs that were too short and weak for his body. His club feet were so bad he might never have been able to stand up on his own. As she worked with Toby and fought for her life, she found a comfort in him that gave her the idea to begin Hearts and Hooves.

Hearts and Hooves' mission is to provide equine assisted activities by taking their miniature horses to hospitals, hospices, nursing homes, special-needs classrooms, Alzheimer's clinics, and many other special populations. They also have an at-risk youth program where the adolescent males come every Monday to work with the miniature horses at the Hearts and Hooves ranch.

In addition to their work with the community, Hearts and Hooves rescues miniature and dwarf horses. Each horse, purchased or rescued, is trained to be an adjunct to EAA or EAP. They also train volunteers to handle the horses. Each horse and volunteer has his or her own areas of specialization. For example, some horses and facilitators work better with elderly persons and others with children (Hearts and Hooves, 2004).

### History of Miniature Horses

The horses that will be utilized as an adjunct to therapy in this study will be miniature and dwarf horses. In order for a horse to be considered a miniature horse, they must measure 34 inches or under as adults (Costantino, 2004; Davis, 1998; Naviaux, 1999). When born,

miniature horses are the size of large breed puppies (Davis, 1998).

Miniature horses are no different than regular sized horses, they are just scaled down versions (Costantino, 2004). Due to their small size, mini horses need to be fed more often, similar to how a colt is fed. Celtic stone carvings that date back to 600 AD were found to include miniature horses (Duggan, 1972). Paintings of European child royalty also depict miniature horses dating in the 1700s and 1800s (Costantino, 2004; Naviaux, 1999). Miniature horses first came to the United States in 1888 from the Shetland Islands through a cattle and horse trader named Eli Elliott. Miniature ponies from Europe came to the United States in the early 1900s (Naviaux, 1999).

Miniature horses were made popular as a pet for children, however, their popularity and breeding flourished when it was found they could be utilized in mines to pull small carts. In the 1960s, specialized breeding farms for miniature horses (though the term back then was “midget horses”) started to appear across the country. During this time, the smallest of the horses were being bred in order to get a gene pool of tiny horses (Naviaux, 1999). Though miniature horses are not strong enough to be ridden, they are popular show horses, competitive cart racers, and companions (Costantino, 2004; Davis, 1998). Their small size and gentle, affectionate (Costantino, 2004), and social (Mills & Riezebos, 2005) nature makes miniature horses excellent companions (Costantino, 2004).

### *Dwarfism*

Excessive breeding such as this led to a defect called dwarfism. According to Naviaux (1999), dwarf horses typically have deformities. The most common defects include overshot (overbite) or undershot (underbite) jaw, legs not growing to length, club feet, buck knees, large forehead, an odd tilted gait, and arthritis. Dwarfism occurs in all species of mammals, including humans.

## CHAPTER III

### RESEARCH METHODOLOGY

#### Statement of Hypotheses

This study evaluates the ability of miniature horses to identify or mirror the internal emotions of humans in an at-risk youth program and to investigate the correlation between the horse behavior communications and presence of incongruent emotions.

Hypothesis: Horses will communicate to the facilitator through body language behaviors and these behaviors will provide a better indication of the inner state of the client than the facilitators' interpretation of emotion by observing facial expressions, thus showing that the adolescent was displaying incongruent emotions with the facilitators.

This research was conducted with the goal of examining the association (observable behavior(s) using correlational analysis) between miniature horses and the therapist or facilitator, thus providing evidence that the horses are able to communicate to the therapist or facilitator the internal state of at-risk youth through external expression of feelings and the verification of a feeling word to verify the internal feelings.

Specifically, the horse behavior(s) were recorded along with the external observation of the emotional inner state of the client. Then, given this

information, the researchers validated the internal emotion of the client. The data collection process followed this sequence in order to provide the researcher an opportunity to show (1) that the horse behavior was a direct reflection of the inner state of the client, and (2) that possibility incongruent emotions are able to be determined by the horses. For example, if the client is smiling on the outside and trying not to cry on the inside that would be indicative of an incongruent emotion. If the horse behavior is observed to be a partial erection, the underlying meaning is that the horse is communicating to the facilitator evidence of macho behavior and the client is trying not to cry. This meaning will be validated by asking clients a surface question such as, “are you trying not to cry”? If they respond with a “no,” then they will be asked for a feeling word and their response will be recorded. The privacy of what they are sharing with the horse will not be invaded. The clients will then be given the opportunity to speak to their therapist or work on anything that may have come up.

In this study, EAA was used since the handlers were not licensed to do EAP. A Licensed Professional Counselor accompanied the clients throughout the study in the event of any problems that the participants may have had when working with the horses that required a mental health professional. The handlers worked with the at-risk youth providing equine facilitated activities and acted as an aid in the horse-human interactions. After or during the session with the horse, the

clients participated in individual or group sessions with their counselor to process the experience and the emotions resulting from interacting with the horses. The handlers facilitating the sessions with the horse(s) are trained as equine behavior specialists in AAA one being a graduate student in professional counseling.

The Institutional Review Board of Texas State University – San Marcos approved the study. It was not necessary to get approval from the Institutional Animal Care and Use Committee, because the decision to place a miniature horse with the participants was an independent decision made by the facility staff prior to the implementation of this study.

### *Participants I*

The participants in this study were 23 adolescent boys who are currently enrolled in middle school. All were in a residential treatment facility for adjudicated youth in Lockhart, TX when they were referred to the Hearts and Hooves at-risk youth program and were enrolled into this study. They participated in one two-hour session with the horses.

### *Participants II*

A small group of 5 participants were adolescent at-risk males at a middle school in a behavior skills class and this therapeutic activity took place on the last day of school on the school grounds. The results of the data collection from the adolescents ran at the middle school were used

solely for the purpose of determining inter-rater reliability and were not included in the main data set due to differences in the environment and time constraints. The adolescents participated in one 45 minute session with the horses.

### *Selection Criteria*

Although blinding was not possible, subject selection bias was reduced by having the researcher's eligibility criteria applied by the clinical director of the residential treatment facility and by the principal at the middle school rather than by the researcher. The particular residential treatment facility where the clients resided focuses on behavior modification and therapeutic interventions. The facility's mission is to break the cycle of child abuse by providing intervention and redirection through comprehensive traditional and experiential models of treatment for abused, neglected, emotionally disturbed, and adjudicated male sex offenders between the ages of 10 and 17. Their programs offer the clients an opportunity to resurrect their cognitive and emotional well-being. Private placements into the treatment facility are accepted, however, many of the placements are from Juvenile Probation and Children's Protective Services. The facility has teamed up with Hearts and Hooves to provide the clients group treatment with equines. Hearts and Hooves' mission is to provide EAA and EAP by taking their miniature horses to hospitals, hospices, nursing homes, special-needs classrooms,

Alzheimer's clinics, and many other special populations. The at-risk youth program with the children residing at the treatment facility takes place at the Hearts and Hooves ranch. The criteria for participation in the study was for the participants to have been currently enrolled at the residential treatment facility and involved in the Hearts and Hooves at-risk youth program.

### *Potential Benefits*

The potential benefits to humanity are a better understanding of horse's ability to mirror emotions in humans as well as their ability to communicate that to humans. Ideally, by conducting this research there will be an increase in awareness and understanding among practitioners and the public alike. The potential benefit to the participants is the same as that of talk therapy and other creative approaches to therapy. An additional benefit for the clients is the enjoyment and emotional connection that occurs in the presence of horses.

### *Potential Risks*

The first risk for the participants was that the horses have the potential to cause minor physical injury. In light of this risk, releases of liability waivers were signed by all participants. This action was deemed as the responsibility of the residential treatment facility and the nonprofit organization being studied since the intervention was established prior to the study. Another potential risk to the participants was the questioning

process to determine an internal emotional state, which may provoke something emotionally painful. To address this potential issue, a licensed therapist was standing by to assist when needed. Since our research involved the utilization of counseling professionals, in the event that any participants experienced adverse reactions, counseling was provided to them by their therapist. The participants met with their therapist during the intervention if requested. All participants met with their therapist after the intervention in a group therapy session in order to ensure no adverse effects were caused by the intervention with the horses since this is a new therapy and is in the beginning stages of development.

#### *Potential Risks to Horses*

Miniature horses involved in the study were not harmed in any way during this research study. For purposes of this study, the horses were observed only for the data collection and any handling of the horses was unrelated and therefore excluded from the study protocol.

#### Procedure

All of the data utilized in this study was collected using a behavioral checklist. The checklist contained three columns. The first was a checklist for the horse behaviors that included licking lips, pawing at the ground, partial erection, nipping, ignoring, pulling, turning left or right, tears, yawning, and biting. This type of data was collected by

walking around the pin where the clients and the horses were in the process of walking the horses or sitting with the horses. As a horse behavior was visually identified the adolescent was approached. The next column was visible emotion of the participant to include the following: anxious, happy, calm, little or not emotional expression, angry, and sad. This column was completed as the data collector observed the horse behavior and then the facial expression of the adolescent was interpreted visually and marked in this column. The third column was used to verify internal emotion, with the same categories as the second column. This column was completed by speaking to the adolescent and finding out what was being discussed or thought about while with the horse. One checklist was used for each adolescent and a numbering system was used for each new behavior that was displayed.

### *Informed Consent*

The investigator met with each participant in groups of 5 and 6 and reviewed the purpose of the study, all procedures and requirements, risks and benefits, limits of confidentiality, and the right to withdraw. A consent form was signed by the guardian or court appointed caseworker. A general consent form was also signed by the nonprofit executive director and the residential treatment facility clinical director giving consent to research the program.

## CHAPTER IV

### RESULTS

Given the non-linear format of the raw data collected, data analysis was conducted using a non-parametric correlational approach. The null hypothesis of no statistical association was rejected ( $p < .05$ ).

Specifically, statistically significant correlation coefficients were found between the horse behaviors and the internal state of the participant, but not to the visible state of emotions. These findings provide support for the tenet that horses have the ability to detect incongruent emotions in the adolescent males that participated in this study. However, this may or may not be generalizable to other populations.

#### Hypothesis Findings

The hypothesis used herein was that for a particular participant a horse will communicate to the facilitator through body language and behavior and that these behaviors will provide a better indication of the inner state of the client than the facilitator's interpretation of emotion by observing facial expressions. Additionally, based on the aforementioned actions, this provides evidence that the participant was displaying incongruent emotions and that the horses are able to determine the true emotion(s) of the client. One participant commented, "the horse gave

all kinds of signs showing it knows what I am talking about.” Another participant reported, “I was feeling good because they (horses) do everything (body language) that you are feeling from the inside of you.” Further, a third adolescent stated, “horses were very good at acting what I was feeling.” One adolescent said, “It felt awesome to work with the horses and my experience was great.” Lastly when asked for his opinion of the program, one participant stated, “I feel that everyone should experience what I did because if they get to experience what I did I’m sure they’d be a better person.”

There were a total of two hundred fourteen ( $N = 214$ ) horse behaviors analyzed. Two results of the analyses of two different behaviors provided evidence of statistically significant relationships between the horse behavior and the verification of the internal emotion of the participant. The relationship between pawing at the ground and verification of the internal emotion being related to a surface issue was observed to be a correlation coefficient of .91 ( $P < .05$ ). The horse that displayed a partial erection revealed a correlation coefficient of .93 ( $P < .05$ ) with verification that the internal emotion was related to thoughts that can be classified as macho, such as embarrassment or trying not to cry.

Table 1: Horse Behaviors and Verifications of Internal Emotions .85↑		
<b>Horse Behavior</b>	Verification of Internal Emotion - <b>Macho</b>	Verification of Internal Emotion - <b>Surface Issue</b>
Pawing at the Ground		0.91
Partial Erection	0.93	

The .85↑ indicated the correlation coefficients are >.85.

Four of the horse behaviors examined displayed a high positive relationship. The horse displaying the behavior of nipping at the participants clothing yielded a correlation coefficient of .83 with the adolescent verifying that they were experiencing internal self abuse. Also interesting was the verification of an internal temper tantrum, although the correlation coefficient signified only a slight relationship.

Another horse behavior with a large positive relationship was when the horse was ignoring the participant. In this instance, a correlation coefficient of .73 ( $p < .05$ ) was observed and indicated or verified that the adolescent was ignoring the horse. A small relationship was observed (.22) between the association and verification of the adolescent being internally frustrated. One explanation regarding why the relationship was small in magnitude is that it was difficult to delineate if the adolescent was ignoring the horse out of frustration or frustrated therefore ignoring the horse.

The relationship between the horse that was observed to be crying and the participant (.80,  $p < .05$ ) verified that although the participant

was not crying outwardly he was crying inwardly. The visible emotion of the participant when the horse was observed crying displayed a correlation coefficient of .37 with having a look of frustration on their face. This illustrates that the horses were able to more accurately detect what the participant was feeling than was the human observer who was evaluating based on facial expression.

Nasal Blowing by the horse also reflected a large positive relationship with a correlation coefficient of .77 ( $p < .05$ ). The observation of this correlation coefficient is related to the verification that the adolescent was feeling fearful internally.

Horse Behavior	Verification of Internal Emotion - Frustrated	Verification of Internal Emotion - Internal Temper Tantrum	Verification of Internal Emotion - Internal Self Abuse	Verification of Internal Emotion - Ignoring Horse	Verification of Internal Emotion - Crying	Verification of Internal Emotion - Nervous	Verification of Internal Emotion - Fearful
Nipping at Clothing		0.27	0.83				
Ignoring	0.22			0.73			
Tears					0.80		
Nasal Blowing						0.26	0.77

The .65A† indicates the correlation coefficients are  $>.65$  and  $<.85$ .

Pulling behavior of the horse also was observed as a high relationship with a correlation coefficient of .68 ( $p < .05$ ) when the participant felt like they were experiencing a loss of control. A small positive association ( $r = .19$ ,  $p > .05$ ) between the participant wanting

isolation from the facilitators and peers was also observed. These behaviors could be described collectively as indicators of a participant wanting to be alone but not being allowed to or also could be viewed as a loss of control.

<b>Horse Behavior</b>	Verification of Internal Emotion - <b>Wanting Isolation</b>	Verification of Internal Emotion - <b>Loss of Control</b>
Pulling	0.19	0.68

The .65B† indicates the correlation coefficients are > .65 and < .85.

The final two horse behaviors that were examined included licking lips and yawning. The association between licking lips and honesty was observed to be a correlation coefficient of .52 ( $p < .05$ ) while the association between licking lips and taking accountability was observed to be a correlation coefficient of .45 ( $p < .05$ ).

The association between a horse yawning and a participant experiencing a feeling of anger was observed to be a correlation coefficient of .58 ( $p < .05$ ). The association or relationship between yawning and participant nervousness was observed to be a correlation coefficient of .33 ( $p > .05$ ).

Table 4: Horse Behaviors and Verifications of Internal Emotions .35↑

<b>Horse Behavior</b>	Verification of Internal Emotion - <b>Angry</b>	Verification of Internal Emotion - <b>Nervous</b>	Verification of Internal Emotion - <b>Honest</b>	Verification of Internal Emotion - <b>Taking Accountability</b>
Licking Lips			0.52	0.45
Yawning	0.58	0.33		

The .35↑ indicates the correlation coefficients are  $>.35$  and  $<.65$ .

### Inter-Rater Reliability

In order to determine the level of inter-rater reliability between the two raters, the researcher obtained data from a middle school using the same checklist. The researcher watched the middle school adolescents and the horses until a horse behavior on the checklist occurred. Once a behavior occurred, the two raters would approach the adolescents. The first column was always in agreement since this was discussed a priori. The column reflecting the visible emotional expression and the verification of internal emotions were not discussed. The correlation among the raters exceeded .93 in all cases. This highly significant relationship is likely a reflection of the raters facilitating at-risk youth programs from a period of greater than 12 months and also from having a minimum of one weekly processing sessions.

### Possible Threat to Internal Validity

A possible threat to internal validity of the study was the development and type of instrumentation used. The data collectors had prior knowledge of potential outcomes for many of the horse behaviors and thus may have unconsciously asked questions to support the hypothesis statement. In order to control for this threat, it would have been ideal to have data collectors that were uninformed as to the potential anticipated results.

## CHAPTER V

### DISCUSSION

This study produced several important findings. As hypothesized, utilizing miniature horses as an adjunct in a therapeutic process with at-risk adolescent boys made it possible to determine incongruent emotions. The results of this study provide support for the idea that horses are able to communicate to facilitators through the use of body language behaviors. These horse behaviors provided a better indication of the inner state of the client than the facilitator's interpretation of emotion. This was evidenced by observing facial expressions, showing that the adolescent was displaying incongruent emotions and that horses are able to determine the true emotion(s). Not all of the behaviors were observed to have a strong positive association. However, all of the behaviors did display a positive association.

Another important finding is that ERM has some important contributions to the field of EAP. The results of this study support the idea that horses are able to communicate with their body language important messages about the sender. These messages can be translated by the therapist or facilitator to get a better idea about the inner state of their client. This

can be very beneficial to therapists with clients who have a difficult time being congruent.

Some authors have stated that horses are a mirror to the inner emotions of humans (Clay, 2004; EAGALA, 2003; Kohanov, 2003, McCormick & McCormick, 1997), however, no research has been done in the past attempting to find a correlation. This research is the first step toward supporting this statement. This was also evidenced by observing facial expressions, showing that the subject was displaying incongruent emotions, and that horses are able to determine the true emotion(s).

#### Future Directions

Future research might involve examining a wider variety of horse behaviors while simultaneously expanding the language described in this research. Ultimately, these two actions may provide even greater benefits to participants than were observed here. Finally, an important next step is to conduct a pretest and posttest study that examines the benefits to the participants based on using this innovative ERM therapy.

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APPENDIX

Child # \_\_\_\_\_ Rater # \_\_\_\_\_

Horse Behavior	Occurrence	Visible mental emotion of the boy	Occurrence	Verification of internal mental emotion of the boy	Occurrence
Licking Lips		Anxious		Anxious	
Pawing at the ground		Happy		Happy	
Partial Erection		Calm		Calm	
Nipping at Clothing		Little to no emotional Expression		Little to no emotional Expression	
Ignoring		Angry		Angry	
Pulling		Sad		Frustrated	
Turning Left or Right or Straight On				Sad	
Tears				Wanting Isolation	
Yawning				Nervous	
Nasal Blowing				Fearful	
Head Nudging				Macho	
				Honest	
				Surface Issue	
				Internal temper tantrum	
				Internal Self abuse	
				Ignoring horse	
				Feeling Accepted	
				Crying	
				Loss of Control	
				Taking Accountability	
				Refusing Accountability	

Fill out one form per child use a number for each behavior occurrence.

## VITA

Michele Lynn Riggs was born in Boone, Iowa, on September 19, 1974, the daughter of Marsha Crouthamel and Richard Kirkman. She was raised by Scott Crouthamel after her mother remarried. She grew up in a rural area near the town of Boone, Iowa. After completing her work at Boone High, Boone, Iowa, in 1993, she enlisted in the United States Air Force, and ended her enlistment in early 2001. While in the Air Force she completed her Associate of Science in Industrial Management Technology in May 1998 from the Community College of the Air Force. She attended Okaloosa-Walton Community College taking evening classes while in the Air Force earning a second associates degree in Personnel Management in August 1998. She enrolled at Southwest Texas State University-San Marcos earning a Bachelors of Applied Arts and Science degree in December 2001. In January 2003 she began her Master degree program in Professional Counseling and intends to graduate in May 2006.

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