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# Animal Assisted Therapy and Autism Intervention: A Synthesis of the Literature

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ANIMAL ASSISTED THERAPY AND AUTISM INTERVENTIONS: A SYNTHESIS  
OF THE LITERATURE

by

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B.S., Murray State University, 2001

A Research Paper

Submitted in Partial Fulfillment of the Requirements for the  
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RESEARCH PAPER APPROVAL

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A Research Paper Submitted in Partial  
Fulfillment of the Requirements  
for the Degree of  
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in the field of Educational Psychology

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## AN ABSTRACT OF THE RESEARCH PAPER OF

JOCELYN TURNER, for the Masters of Science, presented on November, 12, 2010, at Southern Illinois University Carbondale.

TITLE: ANIMAL ASSISTED THERAPY AND AUTISM INTERVENTIONS: A SYNTHESIS OF THE LITERATURE

MAJOR PROFESSOR: Dr. Brett Zyromski

The overall intention of this research project was to determine if, based on the available literature, Animal Assisted Therapy (AAT) has potential as an efficacious adjunctive therapy method for helping to generate greater levels of social functioning, for individuals with Autism. This project draws from interdisciplinary research and professional accounts, to present an organized review of the literature on AAT and autism, with a focus on intervention methods and their effects, to present how therapy animals might be utilized as part of the special educational milieu of adolescents and teens with high functioning Autism or Asperger Syndrome.

## CHAPTER 1

### Identifying the Problem

The literature is inundated with accounts reporting successes with Animal Assisted Therapy (AAT), and the number of professionals, programs, and organizations that have embraced AAT continues to rise. The overall intention of this project was to observe/detect if, based on the available research, AAT concept and strategies have potential as an efficacious treatment method for individuals with autism. Chapter one introduces the areas of need within the current body of AAT and autism literature, provides the historical highlights of AAT, and describes relevant terminology and symptomology. Then, chapter two offers an organized review of the literature on AAT and autism, with a focus on intervention/treatment methods, psychological and physiological effects, followed by a synthesis of the information acquired, and attempts to answer the question, “Do research findings seem to support the use of AAT treatment on/for autism symptoms?” Does there exist empirical data which validates the potential for using AAT interventions to collaborate with the clinician in successfully improving communication and social functioning for individuals diagnosed with an autism spectrum disorder?

This project draws from interdisciplinary research and professional accounts, to consider how therapy animals might be utilized as part of an autistic student’s special educational milieu, and aid in generating a level of social functioning whereby individuals with autism participate in life more fully.

Current empirical and research studies pursuing this line of study, provide preliminary

statistical evidence in two general categories: a) Research suggesting therapy dogs may encourage improved (pragmatic) communication skills (Martin & Farnum, 2002), and b) research suggesting therapy dogs may take on a unique role as a transitional object, similar to that of the safety blanket carried by a toddler (Fine, 2006; Winnicott, 1986). The purpose of the therapy dog as a transitional object is to provide an avenue for improved emotion regulation and catharsis (comfort/emotional safety), as one moves from one experience/relationship to another. In this case, the child projects attributes of familiarity, predictability and safety, onto the animal, and has the potential to supply the child with a supportive agent for entering into new situations or environments successfully, in spite of stubborn communication and social obstacles. (Winnicott, 1986).

The most common impairments faced by the autistic community reside in communication and social development (Heward, 2006). Integrating into his/her community and forming of social bonds and relationships are typically very difficult for individuals with autism to overcome and often leave the individual and family feeling isolated (Fine, 2006). Reliable interventions and therapies for facilitating improvement for this population in emotion regulation and community integration are in demand. The structured use of a therapy animal, as a tool that encourages the managing of one's emotions as well as the development of pro-social conduct, simultaneously holds potential for the professional advancement of the clinical field along with improved services for a population hungry for progress.

Prioritizing data driven efforts, to efficiently and ethically expand upon current literature, as well as to establish a foundation for informed clinical response to the use of therapy animals with the autistic community, is an important and timely task-at-hand, and

striving to fill in the empirical gap in research is a pursuit that communicates professional integrity (Pavlidis, 2008). The next two sections immediately following in this chapter (Autism and AAT), further clarify the relevancy of need for prioritizing a professional “spring cleaning” of the inconsistencies within the literature, along with an interdisciplinary commitment to ethical practices and reliable data.

#### *Status of Autistic Spectrum*

Evidence compiled by the World Health Organization (NIMH, 2001) has suggested that by 2020, “childhood neuropsychiatric disorders will rise by over 50% internationally to become one of the five most common causes of morbidity, mortality, and disability among children” (as cited in Bush, 2001, pp. 94). This statistic is particularly disturbing when added to the reality that most of the treatments and services children and adolescents typically receive have not been evaluated to determine their efficacy across developmental periods, and that even when clinical trials have included children and adolescents, the treatments have rarely been studied for their effectiveness in the diverse populations and treatment settings that exist in this country (NIMH, 2001).

Unfortunately, autism’s history is such that many treatments and interventions have been hastily marketed to a trusting and anxious public before demonstrating an appropriate amount of evidence on their safety and effectiveness (Heward, 2000).

#### *Status of Animal Assisted Therapy*

Kruger (2002) believed that current animal-assisted interventions show promise, but are currently a category of supplemental therapies working to validate their efficacy. Few practitioners in the AAT field are trained in research methods, and fewer still

possess adequate funding to conduct the kinds of studies needed to establish animal assisted therapy as empirically-supported treatment (Kazdin & Weis, 1998).

AAT lacks a clear standard definition acknowledged by the various professional disciplines, and the literature reveals a few, typically interchangeable, terms/labels such as: “pet therapy,” “animal assisted intervention,” “pet-facilitated therapy,” “Canine therapy,” or “Animal assisted activity” (Pavlidis, 2008, p.70), hence, the literature is organized over different terms/labels, which all refer to animal based intervention, both between professional groups currently implementing the use of animals and even within each profession. Subsequently, a shared terminology is missing from which to organize the field. Also missing from the field includes a unifying set of practice guidelines and a widely accepted and coherent theoretical framework that explains how/why using animals as an intervention is potentially therapeutic. The methodologies used to study AAT effects show conceptual, procedural, and statistical weakness, which raises doubts regarding validity among the professional (Kruger, 2004).

#### Purpose of Paper

The purpose of this project is to explore available research on using Animal Assisted Therapy (AAT) interventions with individuals with high functioning autism/Aspergers. Particular attention will be paid to the criteria for which represent the fundamental design of AAT, the manner in which AAT, as a clinical/therapeutic intervention, is most commonly practiced and facilitated by professionals. This manuscript will review outcome data and research illustrating promising results for AAT as a therapeutic adjunct. The manuscript will conclude with, recommendations for future directions for the AAT field. By gathering together the valid and relevant body of

literature that examines AAT and synthesizing those findings with what is currently known about the emotional and social integration needs and therapeutic interventions for youth with Autism, this paper presents the current foundation of knowledge that will enable future clinicians and researchers to consider areas of potential and decide upon the next logical steps for scientific study.

## History / Background

### History of AAT

#### *AAT History*

There exists a long-drawn-out history chronicling professional accounts of perceived psychophysiological and psychosocial benefits when animals have been utilized in therapeutic environments (Chandler, 2005; Ewing, MacDonald, Taylor & Bowers, 2007; 1989; Lovaas, 1987; Nathanson, 1998; Redefers & Goodman, 1989; Sams, Fortney, & Willenbring, 2006; Wilson & Turner, 1998). Most researchers have, when examining the roots of animal assisted therapy (AAT), made a point of acknowledging a uniquely intermingled and inherent relationship between humans and animals that manifests a rather mystical guiding quality (Fine, 2006; Pavlides, 2008). Animals were first documented as being professionally utilized in a therapeutic environment in 1792. This initial record, from the York Retreat in England, included animal caretaking as part of their clients' therapeutic milieu (Christiansen, 2007; Pavlides, 2008). However, far later, in 1919, animal assisted therapies officially began. Secretary of the Interior, Franklin K. Lane, advised St. Elizabeth's Hospital, a psychiatric facility in Washington,

D.C., to make dogs a part of the therapeutic life of their patients (Burch, 1996; Chandler, 2005; Hooker, Freeman, & Stewart, 2002). In 1942, the U.S. Army Air Force utilized a working farm at their convalescent hospital in Pawling, New York, in order to help recovering veterans (Chandler, 2005; Christiansen, 2007; Hooker et al., 2002). While noted as the formal launch of AAT in the United States, neither St. Elizabeth' Hospital or U.S. military hospital conducted research studies or collected data on the effects of their work (Chandler, 2005).

Therefore, it was in the early 1960's, when child psychologist, Boris Levinson, came to discover the comforting benefit of having his dog present when meeting with children during therapy sessions (Chandler, 2005; Hooker et al., 2002; Levinson, 1969, 1997; Pavlides, 2008). The result was an emergence of a specific and unique direction of research efforts by Levinson, which he called "pet therapy," and would (eventually) be acknowledged as the birth of AAT (Chandler; Levinson, 1969; Pavlides, 2008).

In the 1960s, equine assisted physical therapy (also known as hippotherapy), therapeutic work which utilizes horses, was introduced as a formal treatment modality (Pavlides, 2008), and in 1969, the North American Riding for the Handicapped Association (NARHA) was established (Chandler, 2005; Fine, 2006). In the 1970's, at Green Chimney Children's residential treatment services in New York (Fine, 2006), farm animals were a feature of the program and used as companions for children with emotional, behavioral, and developmental needs. As Levinson continued the direction of his work, he looked at the bond between humans and animals, and in 1972, he asked his peers in New York about their use of pets in their psychotherapy practices. Out of 435 responders, 33% stated they had employed pets as "therapeutic aids," and 57%

recommended keeping pets in the home for increased mental health (Levinson, 1972; Pavlides, 2008, p.23).

As interest in the subject of AAT continued to increase, Sam and Elizabeth Corson, psychiatrists at Ohio State University's Psychiatric Hospital in the 1970's, distinguished themselves as they expanded upon the earlier work of Levinson. (Chandler, 2005; Christiansen, 2007; Fine, 2006; Hooker et al., 2002). The couple was the first to collect empirical data from pilot studies on the use of animals in hospital and nursing homes settings, and their data reported statistically significant physical, psychological, and social gains; and it was in the areas of socialization and self-confidence where most improvements were noticed, including patients who broke long periods of self-imposed silence when they chose to ask to play with the dogs (Corson, S., Corson, E., Gwynne & Arnold, 1975).

The numerous anecdotal reports of professionals and families, as well as the increase in number and scope of services through associations and organizations seemed to point to a belief that animal-assisted therapy is in the middle of a growth spurt and is finding a role within current clinical fascination (Delta Society, 1996; Kruger & Serpell, 2006; Minatrea & Martin, 2008; Pavlides, 2008). However, there remained only a small amount of scientific data in support of what many health care professionals have intuitively acknowledged: that animals can have a unique way of meeting people's emotional and therapeutic needs (Levinson, 1997; Serpell, 2006). The limited amount of literature and study became a motivation for professional reaction. In 1977, the Delta Society was founded by doctors, psychiatrists and veterinarians, who had experienced positive results in using dogs with their patients, and therefore, set out to fund research to

prove their theories (Bustad & Hines, 1984; Chandler, 2005; Delta Society, 1996; Kruger & Serpell, 2006; Serpell, 2006). From that point until today, slowly empirical data is being professionally gathered, studied, and developed. The 1980s saw the nursing profession begin to produce journal articles, initially descriptive in nature, reporting patient reduction of stress, but soon expanded to reports of physiological benefits, and lowered blood pressure of child and adult patients (Biley & Brodie, 1999; Bustad & Hines, 1984; Carmack & Fila, 1989; Cox, 1993; Friedmann, Katcher, Lynch & Thomas, 1980; Hooker, Freeman & Stewart, 2002; Meadows, 2002; Miller & Ingram, 2000).

AAT gained more mainstream attention and popularity during the late 1900's and 2000's, and as the professional community's exposure to the material increased (Chandler, 2005), a number of experimental research articles reported AAT's positive benefits in a variety of clinical settings and, were published in health care journals. (Barker & Dawson, 1998; Chandler, 2005; Cox, 1993; Hooker et al., 2002; Mcvarish, 1995; Staats, Pierfelice, Kim & Crandell, 1999). AAT organizations and programs currently function at both local and national levels, with many programs, such as Therapy Dogs, Incorporated; the Delta Society; Therapy Dogs, International; and the National Center for Equine Facilitated Therapy (Chandler, 2005; Kruger, 2004; Pavlides, 2008).

### *Autism Background*

Attention and research pertaining to the study of ASD is of much interest to professionals at this time, largely due to its prevalence, increased need for provision of services and resources, and the degree of limitation this disorder places on both the autistic individual as well as his/her family (Beaumont & Sofronoff, 2008; Green, Pituch, Itchon, Choi, O'Reily, & Sigafos, 2006; Lopata & Thomeer, 2010; Pavlides, 2008).

Professional opinions differ, and there is currently no conclusive explanation as to the cause of Autism (Heward, 2006). What is known, with certainty, about the nature of the disorder was first described by Dr. Leo Kanner, a psychiatrist at Johns Hopkins Hospital in (1943):

“a neurological brain disorder that begins in early childhood, typically within the first 3 years, and persists throughout adulthood. It affects the areas of the brain controlling language, social integration, and creative and abstract thinking” (as cited in Heward, 2006, p.264).

Symptoms can present mild to severe in terms of cognitive functioning, social impairments, level of communication, and intensity of restricted, repetitive, and stereotyped behaviors and preoccupations (APA, 2000). People with autism tend to struggle with stressful or changing situations, and can be acutely sensitive to stimuli in their environment (Heward, 2006). For these reasons, their reactions in the social world tend to seem bizarre to others. In addition, conventional educational and psychotherapeutic interventions have had a history of falling short of consistent and generalized improvements in autistic children (Redefer, 1989). If traditional interventions are not finding a high level of success and reliability with this population, and the children and families often find themselves isolated from the mainstream educational and social community, then innovation is needed.

### *Prevalence*

Students with an ASD are among the fastest-growing categories in special education (Heward, 2006, p.273). The Autism Society of America (2000) estimated that as many as 20 in 10,000 people have autism. In the 2003-2004 school year, 140,473

students ages six to 21 received special education services under the IDEA category of autism (U.S. Dept. of Education, 2004), which is more than four times the 34,101 students with autism served seven years earlier. It is not yet clear as to the factors which are responsible for such a rapid increase of children diagnosed, but there remains a growing need for development of infrastructure and expertise.

### *Causes and Diagnostic Screening*

There have been numerous ideas proposed over the years explaining the cause of autism, but this question still has no exact answer. In 1977, the NSAC clarified that the cause of autism has not been found to come from factors in the psychological environment of a child. Although the precise neurobiological mechanisms that cause autism have not been discovered, “it is clear that autism reflects the operation of factors in the developing brain” (National Research Council, 2001 p.11), with a clear biological origin in the form of abnormal brain development structure, and/or neurochemistry (Mauk, Reber, & Batshaw, 1997), and numerous genetic links to autism have been established, but researchers do not completely understand their causal relationship (Autism Research Institute, 1998). Experts now suspect that genes may make a child more susceptible to autism but that environmental factors may trigger it, but these environmental factors are still unknown.

The primary method for determining if a child has an autism spectrum disorder is the direct observation of behavioral characteristics. There is no medical diagnostic test for ASD. A professional (psychologist, psychiatrist, neurologist, or developmental pediatrician) performs a screening test and directly observes behaviors, in addition to using a validated and reliable autism diagnostic tool. Criteria for the assessment of

spectrum disorders are detailed in the diagnostic manual DSM-IV (APA, 2000). Certain ASD behaviors can be reliably diagnosed in children as early as 18 months old.

Instruments most often used in diagnosis by a trained clinical professional include:

Childhood Autism Rating Scale (CARS), Gilliam Autism Rating Scale (GARS) and the Autism Diagnostic Observation Scale (ADOS) (Heward, 2006, p.273; Katherine, 2005)

### Research Questions

This research report is designed to review and utilize the existing body of literature to answer the following questions:

- (a) What aspects of Animal Assisted Therapy (AAT) have empirical studies supported as beneficial?
- (b) What aspects within the Autism/Asperger's intervention literature are empirically supported as beneficial?
- (c) What is the current status of Animal Assisted Therapy (AAT) research with individuals diagnosed with high functioning autism or Asperger Syndrome (HFA/AS)?
- (d) Based on the review of the literature, how might a counselor operationalize AAT in a traditional and/or therapeutic school setting with HFA/AS?

### Definition of Terms

*Pervasive Developmental Disorders:* Five diagnoses are categorized as Pervasive Developmental Disorders: Autistic Disorder, Aspergers Syndrome, Pervasive Developmental Disorder (PDD-NOS), Childhood Disintegrative Disorder, and Rett syndrome (APA, 2000).

*Autistic Disorder.* A neurodevelopmental disorder which disrupts communication and negatively impacts the ability of a person to participate in social aspects of life. Life-long developmental disability marked by three defining features with onset prior to age 3: (a) qualitative impairment of social interaction (lack of social or emotional reciprocity) (b) qualitative impairment of communication (delay or total absence of spoken language) and (c) restricted, repetitive, and stereotyped patterns of behavior, interests and activities, a persistent preoccupation with parts of objects (APA, 2000). In a nutshell, autism is “a developmental disability that significantly affects verbal and nonverbal communication and social interaction” (NICHCY, 2002, pp. 1). Some examples of characteristics the population is faced with include:

- (a) Experience difficulty in verbal and/or nonverbal communication, which ranges in extremes from not speaking at all to being unable to interpret body language or to participate comfortably in two-way conversation.
- (b) Exhibit rigidity in thought processes, difficulty with learning abstract concepts, generalizing information, and tolerating changes in routines and/or environments.
- (c) Difficulty with reciprocal social interaction. This can range from appearing to want social isolation to experiencing social awkwardness in attaining and maintaining relationships.
- (d) Unusual Responsiveness to Sensory Stimuli may cause the individual to react to sensory stimulation in atypical ways

Best practice guidelines for the diagnosis of Autism recommend a comprehensive assessment by qualified professionals, using a combination of parent report and observation. (Heward, 2006, p.273)

*Applied Behavior Analysis (ABA):* A therapeutic process involving studying and modifying behavior, and then using a series of trials to shape a desired behavior or response. Skills are broken down into components and then taught to the child using a system of reinforcement. ABA is one of the few evidence-based treatments that show effectiveness. It involves intensive training and extensive time spent in therapy (20-40hrs. per week) ('Applied Behavior Analysis,' 2009; Lovaas & Smith, 1987; NRC, 2001).

*Animal-Assisted Interventions:* Any therapeutic intervention that intentionally includes or incorporates animals as part of the therapeutic process or milieu carried out by a trained professional (Pavrides, 2008, pg. 70).

*Animal-Assisted Therapy (AAT)* is characterized by the inclusion of a certified therapy dog in the process of achieving an intervention objective formulated from the therapeutic milieu (Pavrides, 2008, p.71). Within a school setting, the supplemental use of AAT would synchronize with the student's Individualized Educational Plan (IEP) educational objectives.

*Animal Assisted Therapy in Counseling (AAT-C)* is one type of application in the broader field of AAT that incorporates pets as therapeutic agents into the counseling process (Chandler, 2005, p.2).

*Therapy Dog:* When a dog and handler work as a team to provide services; Unlike service dogs, therapy dogs are not legally defined, however, must go through similar testing and certification in order to work in health care. Dogs must pass 11 tests on

behavior, disposition and training within the American Kennel Club's Canine Good Citizen test (Delta, 1996).

### Conclusion

Treatment approaches for people on the autism spectrum have, historically, included behavior modification strategies, pharmacotherapy, structured environments, and educational programs (Chandler, 2005; Fine, 2006; Heward, 2006; Horner, Carr, Strain, Todd, & Reed, 2002). The increase of children being diagnosed with autism, combined with the anxiousness for relief available for those struggling with the symptoms and affects of the disorder, has led to a hurried marketing of treatments with little to no supportive empirical evidence as to their efficacy. Among the most scientifically accepted approaches to treating autism symptoms, thus far, includes: early intensive intervention, applied behavioral analysis, and prescription medication (Heward, 2006). Similarly, the practice of Animal Assisted Therapy (AAT) continues to expand, despite the long history of animals being utilized by professionals in therapeutic settings, and with minimal empirical evidence attesting to its efficacy as a therapeutic intervention. Anecdotal reports position AAT as a promising adjunct to treatment work with many different populations, including individuals diagnosed with an autism spectrum disorder (Chandler, 2005; Martin & Farnum, 2002; Pavlides, 2008) AAT research literature has reported findings that suggest it is a calming, engaging approach, that improves health conditions and offers unique benefits for encouraging social development (Bardill & Hutchinson, 1997; Biley & Brodie, 1999; Bustard & Hines, 1984; Carmack & Fila, 1989; Fine, 2006, Pavlides, 2008). The following chapter will examine AAT and Autism intervention literature.

## CHAPTER 2

### Literature Review

#### *Human-Animal Bond*

*Biophilia*. AAT is based on the belief in a natural tendency for relationships to form between animals and humans: the human-animal bond (Bustad & Hines, 1984). *Biophilia* is a concept that was coined by E. O. Wilson in 1984, and one that McConnell (2002) described as “the other end of the leash.” The biophilia hypothesis postulates that humans are hard-wired with an inborn tendency to be attentive to, attracted by, and have an interest in other species, namely the behavior and activities of animals (Chandler, 2005; Pavlides, 2008). Researchers believe that this tendency is the reason they have consistently noticed how quickly a shared connection and rapport are fostered between clients and therapy animals (Bustad & Hines, 1984; Cox, 1993; Jones, 1985; Kruger & Serpell, 2006; Meadows, 2002). The concept of biophellia suggests that because humans and animals have co-evolved in natural environments and have relied on those interactions for survival, the human brain has become designed to hone in on and selectively pay attention to animals. Going further, biophellia proposes that this selective attention results in interactive experiences with animals that influence human cognition, health, and well-being (Bustad & Hines, 1984; Cox, 1993; Jones, 1985; Kruger & Serpell, 2006; Meadows, 2002). In turn, a sense of safety and relaxation in humans tends to be noticed when a friendly and calm animal is present (Fine, 2000; Katcher & Wilkins, 1998; Levinson, 1997). This attentive tendency is thought by some to be stronger in children and youth than in adults (Melson, 2000). The establishment of a safe therapeutic

environment and rapport is a primary concern of the therapist throughout the therapeutic journey taken with a client. (ACA, 2000; Chandler, 2005). By inviting an animal to join them, the therapist may be attempting to foster a sense of trust and affiliation, ultimately between him/herself and the client, based on a shared connection: the animal.

Despite the array of references in AAT literature to a genetically-based attraction to animals, there remains no validated data demonstrating this specific attraction (Serpell, 2006). Regardless, there remains a uniqueness of AAT to continually bring about a greater level of engagement during therapies (Kruger, 2004), and the theory of biophilia offers one conceivable explanation.

### *Animals and Children*

Developmental researchers and theorists seem to agree that security and safety are paramount during early childhood (Heward, 2006). Maslow communicated survival needs as the foundation of his needs hierarchy, a concept that John Bowlby referred to as “felt security” and that Eric Erikson called “basic trust” (as cited in Chandler, 2005, p.86). AAT literature is replete with anecdotal testaments and qualitative reports regarding the immediate, caring bonds forged between children/youth and animals in therapeutic settings and implies that it is this attachment that fosters the therapeutic gains made in such cases (Bardill & Hutchinson, 1997; Elliott, 1994; Ewing, MacDonald, Taylor & Bowers, 2007; Harris & Handleman, 2000; Humphries, 2003; Mallon, 1992).

The merging of evidence illustrates how children/youth utilize their pets for support and catharsis when feeling negative emotions such as sadness, anger, or fear. For example, Rost and Hartmann (1994) found that 79% of German fourth grade students sought out their pets when feeling sad (as cited in Fine, 2006, p.373). Similarly, Covert et

al. (1985) interviewed Michigan youth ages 10-14, and 75% of them indicated that they turn to their pets when upset (as cited in Fine, 2006, p.374). Melson and Fogel (1996) conducted a study in which surveyed parents reported that, by ages 11-12, children spent more time regularly caring for pets than caring for younger siblings (when both were available) (as cited in Fine, 2006, p.380). A later study led by Melson (1998) found that, when a group of 5-year-olds was asked to whom they went when feeling sad, angry, or afraid or needing to tell a secret, 42% said their pet. Melson's study also demonstrated that with a group of youth ranging from 7-15 years old, after 5 minutes alone with an unfamiliar dog, 76% of these youth felt that the dog understood how they were feeling and would tell a secret to the dog (as cited in Fine, 2006, p. 380; Melson, 2000).

Furthermore, research has indicated that animals may be well suited for the social and cognitive development of children (Triebenbacher, 2000), and a number of researchers have suggested that AAT may be appropriate for children with Pervasive Developmental Disorder (PDD) (Law & Scott, 1995; Nathanson, deCastro, Friend, & McMahon, 1997; Redefer & Goodman, 1989), and in his work with adolescents with mental disorders, Mallon (1992) described animals as a source of nurturance for this population.

### *Physiological and Psychological Health*

People of all ages and physical conditions have reaped physiological and psychological benefits from animal therapy. Sam and Elizabeth Corson's (1975) study exhibited physical, psychological, and social gains in nursing home residents when they became involved in an animal therapy program (Chandler, 2005; Corson et al.). In 1980, the presence of a dog was found to significantly lower blood pressure of hospitalized

children (at rest during a mildly stressful activity), compared to when the dog was absent (Friedmann et al.). After that finding, nursing literature began to address the subject of pet therapy as an intervention resource for the profession (Carmack & Fila, 1989; Friedmann, et al.).

In fact, the largest body of research pertaining to the human-animal bond examines the ways pets have benefitted both the physiological and psychological health of individuals (Friedmann et al., 1980; Anderson, Reid, & Jennings, 1992). Most research is in the nursing, medicine, and psychotherapy fields, and AAT benefits have been recognized in variety of settings, such as (a) hospitals (Bardill & Hutchinson, 1997; Barker & Dawson, 1998; Cole & Gawlinski, 2000; Miller & Ingram, 2000), (b) residential facilities (Kogan, 2000; Mcvarish, 1995; Walsh & Mertin, 1994), and (c) rehabilitation facilities and hospice (Conner & Miller, 2000). Research has shown that the use of animals in a therapeutic format has the potential to positively influence a large number of health-related problems, such as (a) elevated heart rate and high blood pressure (Anderson, Reid, & Jennings, 1992; Friedmann et al., 1980; Cox, 1993) (b) cardiovascular improvements (Cox, 1993; Friedmann et al., 1980), (c) lowered hormone levels (Cole, & Gawlinski, 2000), (d) anxiety (Barker & Dawson, 1998; Draper et al., 1990; Hansen, Messinger, Baun, & Megel, 1999; Hooker et al, 2002; Miller et al., 2003; Staats et al., 1999), (e) alleviated depression (Walsh & Mertin, 1994), (f) low self-esteem (Walsh & Mertin, 1994), and (g) increased daily activities and self-care (Campbell-Begg, 2000), thus enhancing both physiological and psychological well-being.

In terms of psychological health, Barker and Dawson (1998) reported that a single AAT session reduced anxiety in hospitalized psychiatric patients with psychotic

disorders.

### *Facilitating Therapeutic Process*

Although many different types of animals have been used in therapeutic environments (Kruger, 2004; Pavlides, 2008), dogs are the most commonly used and discussed in the literature. The following paragraphs discuss the benefits of using therapy dogs.

*Dog as Co-counselor.* The therapeutic client-animal relationship is likely to form based on a shared connection between the client and the therapy animal. While pet owners typically form a permanent attachment to their pets, the relationship between a therapy pet and client is less about an attachment and more about trust and affiliation (Chandler, 2005). In therapeutic contexts, animals provide a supportive, confidential, and empathetic presence. Explicitly observing animals is associated with a direct and positive impact on a person's feeling of safety and moderates stress responses (Barker & Dawson, 1998; Friedmann et al., 1980; Hansen et al., 1999; Nagergost et al., 1997).

Trained therapy dogs make up the largest percentage of animals used for AAT because they have the ideal demeanor to serve as healers in most environments and have the capacity to become working partners with both counselors and clients (Chandler, 2005). They (a) offer unconditional acceptance, (b) give the client a forum for comfort and safety, (c) present a non-judgmental and non-threatening atmosphere, and (d) easily establish rapport (Kruger, 2004). Unlike human companions, dogs offer themselves as highly interactive, attentive friends whose avid devotion and high compatibility predispose them as therapeutic, and dogs are now being trained for a large number of specific tasks (Pavlides, 2008).

In addition, the literature recognizes a dog's body language is an excellent observatory resource for counselors (Chandler, 2005; Corson & Corson, 1978; Levinson, 1962; Mallon, 1992). A dog's behavior reflects the manner in which members of the species instinctively communicate with each other in the pack. For example, if the dog always sits or lies down beside a client's feet with his/her tail and rear nestled against the individual's leg, this reflects a position of comfort and calmness in the dog pack (McCulloch, 1982; Serpell, 2006). One can conclude then that knowledge of the therapy dog's body language could be used to inform the counselor about his/her client's present emotional state and/or level of stress. This information, in turn, has the potential to provide the counselor with a better understanding of how/when to move forward in the session (Chandler, 2005; Corson & Corson, 1978).

*Therapeutic rapport and transitional object:* Therapy dogs have an apparent ability to facilitate communication and interaction between patients and their therapists, and may hold a unique aptitude to mediate interactions in otherwise awkward or uncomfortable therapeutic environments (Bardill & Hutchinson, 1997; Corson et al., 1975; Levinson, 1969; Mallon, 1992; Minatrea & Martin, 2008; Serpell 2006; Winnicott, 1986). Because animals are objects of attachment (Winnicott), AAT literature abounds with anecdotal and qualitative findings regarding the loving bonds that are forged between children and therapy animals, with the implication that the attachment is part of what helps patients achieve therapeutic gains (Chandler, 2005, Fine, 2006; Mallon, 1998; Martin & Farnum, 2002; Nathanson, 1998; Redefer & Goodman, 1989). Similarly, the notion exists that animals can function as transitional objects by acting as an emotional bridge between a child and therapist (Winnicott), and as a "security blanket" for the child.

It is by first attaching to, trusting, observing, and establishing bonds with the dog that these children can then extend these bonds and progress into a relationship with another human (Katcher, 2000). According to Katcher,

“Animals make good transitional beings because they move and show intentional behavior, behaving more like a person than a stuffed toy . . . Unlike stuffed toys who provide soft touch, animals are capable of giving active affection and seeking out the child. But most importantly they can never contradict the attributes projected onto them with words.” (as cited in Chandler, 2006, p.6)

*Engagement and focus.* Beaumont and Sofronoff (2008) defined social competence as “engaging in reciprocal positive interactions with others, and responding appropriately to others’ behavior” (p. 744). Specifically, in regard to children on the autism spectrum, Levinson (1997) proposed that animals help to arouse the interest of the client during therapy sessions. In 2002, preliminary empirical research conducted by Martin and Farnum supported Levinson’s claim with data. This research exposed ten children with autism spectrum disorders to three different therapy conditions: (a) a therapy dog, (b) a stuffed dog, and (c) a ball. All three conditions were videotaped and designed to utilize a trained clinician with a specifically formatted protocol. Results from this study documented that, during the presence of the therapy dog, child laughter (i.e., enjoyment) increased when his/her attention was focused on the dog. In addition, the child was more likely to stay engaged and attentive to the dog than the other two conditions, he/she looked around the room less, he/she was more likely to talk to the therapy dog than to the stuffed dog or the ball, and he/she even initiated numerous conversations and exchanges with the therapy dog. The child also was more often

engaged the therapist in discussions about the therapy dog than in discussions about the stuffed dog or the ball and more compliant; indicating that using a therapy dog may increase meaningful, focused discussions.

In some instances, the child exhibited an increase in stereotypical behavior (e.g., hand-flapping), which was interpreted as being due to the child's excitement (Martin & Farnum, 2002).

*Motivation and participation.* Animals have the ability to inspire and motivate people to not only engage but also to participate in constructive activities that they would not have otherwise (Chandler, 2005). As a result, AAT is reported to serve as a major source of motivation for client participation in therapy. Holcomb & Meacham (1989) found that, among all of the various types of occupational therapy groups offered, AAT was the most effective in attracting isolated clients to participate.

*Dog as teacher.* The utilization of a therapy dog as an adjunct has not only demonstrated benefits in terms of the facilitation of a safe therapeutic environment and development of therapist/client rapport. Fledgling empirical evidence also acknowledges that this practice can positively support therapeutic goals involving skill acquisition (Chandler, 2004; Cohn, 1996; Mallon, 1992; Minatrea, 2008; Nathanson & DeFaria, 1994; Pavlides, 2008; Sams, Fortney & Willenbring, 2006; Triebenbacher, 2000). In addition to social/emotional opportunities, therapy dogs seem to be able to support the development of (a) verbal communication skills (Burch, 1996; Netting, Wilson & New, 1987), (b) impulse-control behaviors (Cox, 1993; Katcher & Wilkins, 1998), and (c) care-taking practices that lead to improved understanding of personal responsibility (Law & Scott, 1995; Pavlides, 2008; Walsh & Mertin, 1994). Goleman (1995) stressed that the

process of emotional expression is largely nonverbal, and human attunement to animal behavior consists largely of reading nonverbal behaviors. One implication that Goldstein, (2000), proposed is that by interacting with animals, especially when that interaction can be facilitated by a trained professional, a child's ability to decode nonverbal cues might be strengthened and, in turn, carries over into relationships with other individuals (Goldstein, 2000; Winnicott, 1986).

#### *Social Development through AAT*

*Social lubricant.* AAT literature reflects opportunities to provide autistic children a conduit to social interaction. Serpell (2006) maintained that therapy animals may possess a unique potential for mediation and can rouse people toward socializing, often with the animal becoming a natural topic of conversation. Pavlides (2008) described two ways in which these exchanges may occur. First, neurotypical peers, those who are initially hesitant to initiate an exchange with a child with autism because of communication or behavioral awkwardness, are more likely to feel comfortable approaching the autistic child if that child has an animal or pet nearby. Pavlides described this as an avenue that "raises social capital" (p. 77). The second opportunity that can result from utilizing AAT with autistic children is the provision of a mode for indirectly interacting with another individual or peer via the "sharing" of his/her animal or as a conversation starter (Pavlides, 2008). In both instances, the therapy dog serves to normalize the social environment for the person with a disability who might otherwise be ignored or treated awkwardly (Hart et al., 1996 as cited in Fine, 2006).

*Social support.* Therapy dogs are noted as having great potential in the role of social conduit. That role may also be extended to aid in the development of relationships.

Dogs have a unique aptitude for offering nonjudgmental and unconditional positive regard to people, even those with whom they are unfamiliar, and are capable of certain aspects of “emotional support” within the context of AAT. Previous studies have especially noted how the animal acts as a confidant to that point (Chandler, 2005; Martin & Farnum, 2002; Pavlides, 2008; Redefer & Goodman, 1989).

In a study conducted by Redefer and Goodman (1989), AAT was found to increase prosocial behaviors and decrease self-absorption and stereotypical behaviors in children with autism. Repeated measures of analysis of variance of AAT interventions with 12 autistic children demonstrated significant improvements in behaviors with fewer autistic behaviors (e.g., hand posturing, humming, clicking noises, spinning objects, repetitive jumping and roaming) and more socially appropriate ones (e.g., joining in with therapy games, initiating activities by giving the therapist balloons to blow up or balls to throw, reaching up for hugs, and frequently imitating the therapist’s actions) when a dog was utilized in therapy. The researchers cautioned that it was not the mere presence of the dog that made the difference but, rather, therapist-designed and orchestrated child-dog interactions and child-therapist interactions. Activities included the therapist modeling and verbally encouraging the children to approach and explore the dog (Redefer & Goodman, 1989).

#### *Other Animals used in AAT*

While the current report focuses on therapy dogs, it is important to know that many different types of animals have been used in AAT programs. The use of dogs is most supported within the literature base because dogs have been the most frequently utilized and accessible for therapy work thus far. However, therapeutic programs which

involve horses and dolphins also continue to develop and undergo study.

*Equine facilitated therapy.* Therapeutic programs, which have been designed for utilizing horses to facilitate interventions and exercises, are identified as equine therapy programs and typically fall under the jurisdiction of a cluster of agencies outside of and separate from those whose programs involve therapy work with other animals. Agencies which support and govern Equine therapy programs include NARA (National Association of Rehab Providers and Associations) and EFMHA (Equine Facilitated Mental Health Association, 2003). The EFMHA has provided a definition for the term *equine facilitated psychotherapy* (EFP):

EFP is an experiential psychotherapy that includes equine(s). It may include but is not limited to, a number of mutually respectful equine activities such as handling, grooming, longing, riding, driving, and vaulting. EFP is facilitated by a licensed, credentialed mental health professional that is dually credentialed as an equine professional. Typically, equine therapy involves physically tending to and learning about horses and/or participating in therapeutic exercises followed by a processing time. Equine therapists/counselors are specifically trained to facilitated experiences that respond to the needs of the individual/group as well as to the horses. (Pavrides, 2008, p.132).

Therapeutic horseback riding is popular to use with individuals along the autistic spectrum, and there is an attentive community and increased effort in examining the efficacy of the intervention (Cohn, 1996; Pavrides 2008; Stoner, 2002). *NARHA Strides*, the organizations quarterly magazine, has examined techniques to use when working with the autistic population (Brown 1996; Cohn). Because of the range of need along the

spectrum, therapeutic goals are tailored to the individuals needs, and often include functional, behavioral and social/emotional goals (Pavlides).

*Dolphin Assisted Therapy (DAT)* Individuals participating in Dolphin Assisted Therapy, go into the water and interact with dolphins. The therapist facilitates this experience. Betty A. Smith is credited as being the first to use dolphins therapeutically (Pavlides, 2008). While in Florida researching dolphin communication in the 1970's, she noticed a unique way that the dolphins interacted with her brother, who struggled with neurological affects triggered by a childhood disease. Although she chose to suspend her DAT work in 1992, Smith would go on to produce "The Discovery and Development of Dolphin-assisted Therapy" in 2003. Her research pointed toward the following benefits of DAT: (a) a calming effect, (b) an increase of self-sufficient behaviors and (c) a marked improvement in the sleep patterns (Pavlides, 2008, p.164). Following Smith's introductory work, David E. Nathanson collected data examining the therapeutic use of dolphins with children with mental retardation as well as other severe disabilities, including autism (Nathanson, 1998; Nathanson & de Faria, 1993; Nathanson *et al.*, 1997). Nathanson's data revealed both short and long-term improvements in the children's speech production and memory, and led him to hypothesize that the therapy work with dolphins improves the processing of children with cognitive disabilities; skeptics identified methodological flaws in his research design (Humphries 2003; Marino 1998; Pavlides, 2008).

Being in the water alone offers benefits for an individual in the areas of sensory input and exercise (Baranek, Parham & Bodfish, 2005; Bumin et al., 2003; Elliott et al., 1994). With the addition of animal interaction experiences under the guide of a trained

therapist, the potential of Dolphin Assisted Therapy continues to be an area of interest. In 2005, Antonioli and Reveley published outcome findings from their study in the *British Medical Journal*, which showed patients suffering from depression benefitted more when interacting with dolphins rather than with water therapy only.

### ASD Intervention Literature

*The Autism Wars* is a phrase routinely used to describe the politics of ASD diagnosis and treatment, and refers to the conflicting opinions and recommendations given by different groups and professionals whose “treatments have been rushed to market before demonstrating anywhere near enough evidence of their safety and effectiveness” (Heward, 2006, p. 293). What follows is an investigative examination of autism research and intervention literature.

#### *Intervention Categories:*

Within the field of ASD literature, three main intervention philosophies have emerged: (a) behavioral/educational, (b) developmental/biological, and (c) social development (Pavlidis, 2008). There is often an overlap of philosophies within program/approach implementation. Each of the intervention strategies reviewed in this chapter can be categorized into one or more of those three philosophies. The following investigation into ASD literature seeks to provide a general framework of understanding, while also focusing on the examination of common elements. As previously stated in Chapter 1, students with ASD constitute the fastest-growing category in the United States special education programs (Heward, 2000). While many interventions have been proposed, very few have been empirically studied sufficiently enough to meet scientific standards that would validate certainty and reliability regarding their benefits. In fact,

only two of the numerous treatment practices designed over time have been clinically proven effective at aiding in the improvement of one or more deficits or co-morbid symptoms experienced by the ASD population: (a) early intensive behavioral therapies and (b) biological/medication (Heward, 2006). As a result, it is increasingly important that reliable infrastructure and expertise continue to develop and improve services provided to the ASD population.

### Target Deficits and Developmental Challenges

#### *Social impairments*

The majority of children begin to develop social awareness by watching and listening to the people around them and by taking note of the different consequences that actions produce. Bolick (2004) called this development of social awareness “the rules of the road” (p. 147). The absence of an intuitive “rules of the road” in terms of social awareness is a trademark of autism, and since intuition is usually missing, professionals and parents strive to help the child read and interpret the social environment (Autism, 2000; Bolick, 2004; Mauk, Reber, & Batshaw, 1997).

#### *Pragmatic Communication*

Bolick (2008) defines pragmatic communication as, “how we use words, grammar, and nonverbal expression to convey our thoughts, wishes, and feelings” (p. 43). Most individuals with neurodevelopment disorders have deficits in pragmatic and social communication, and a large percentage of people with autism do not use language to communicate their needs successfully (APA, 2000; Bolick, 2008; Pavlides, 2008; Sallows & Graupner, 2005; Sams et al., 2006; Schreibman, 2000). These individuals tend to present with a very literal understanding of words and phrases and struggle to adjust

the way they process information and communicate with others. Additionally, individuals with ASD often need help understanding social cues and nonverbal communication and learning socially acceptable rules of dialogue, as well as age-appropriate humor. Abstract concepts such as (a) mutual affection, (b) reciprocity, (c) tolerance, and (d) respect can be baffling to the individual with ASD (Chandler, 2005, Horner, Carr, Strain, Todd & Reed, 2002; Martin & Farnum, 2002; McConnell, 2002; Minatrea & Wesley, 2008). It is understandable, then, that developing relationships is very challenging for this population. Providing assistance in helping an individual with ASD unlock and practice the mysteries of social communication is generally the reason speech and language therapy is a frequent component of the treatment and education of those with ASD (APA, 2000)

*Behavioral symptoms, Emotions, and Management Challenges.*

Individuals with autism often present with restricted repetitive and stereotyped patterns behavior (APA, 2000; Bolick, 2008; Heward, 2006). For example, the individual may exhibit an intense preoccupation with a particular interest or an inflexible routine, and therefore, experience serious functional, coping and mood regulation challenges when a routine, schedule, or arrangement is altered (Bolick; Heward). Similarly, the need for routine and/or repetitive behavior may also play out in the form of ritualistic and/or unusual behavior patterns such as (a) hand flapping, (b) rocking back and forth, and (c) humming the same few notes (Heward; Martin & Farnum 2002, Redfer & Goodman, 1989;). Aggressive, disruptive, anti-social, oppositional, or obsessive-compulsive behaviors are often reported in children on the autism spectrum and may be highly related to feelings of anxiety and other mood problems (Horner, et al., 2002; Tonge, Brereton,

Gray, & Enfield, 1999).

When Lainhart and Folstein (1994) conducted an outcomes review of 17 published case studies of people diagnosed with PDD, they noted the influential role anxiety plays and stated, “Several reports mentioned that before specific treatment, behavioral symptoms associated with the affective disorder threatened the patient’s placement in the home, at school, and in the workplace” (p. 595). However, after treatment and improvement of the affective symptoms (e.g., anxiety), autistic symptoms decreased, and functional ability improved (Lainhart & Folstein, 1994).

### *Sensory Challenges.*

Most individuals react to and interpret their surroundings based on what the brain tells them during the constant flow of incoming messages from the eyes, nose, skin, tongue, and ears. The brain then acts as a filter that provides them with what is relevant and ignores the rest (Baranek, Parham, & Bodfish, 2005; Goldstein, 2000; Iarocci & McDonald, 2006). For individuals with ASD, this filter is not available, and what results is an overload of stimuli. Multiple sensory experiences occur simultaneously, causing concentration to become extremely difficult (Baranek, et al.; Bolick, 2004; Iarocci & McDonald).

Accordingly, sensory-based interventions are aimed at improving the body’s abnormal response to external stimuli (Goldstein, 2000; IAN, 2010; Iarocci & McDonald, 2006). Occupational therapist and clinical psychologist, Jean Ayres, Ph.D., developed a theory she called Sensory Integration (SI), which is based upon the belief that by changing the experience will change the way the brain integrates the sensory information and cause the higher centers to modulate and regulate the lower brain sensory-motor

centers (Schaaf & Miller, 2005). Although this approach is frequently used for individuals with ASDs, there is little data-driven research to support the practice of SI Therapy with certainty (Baranek, 2002).

*Life-span challenges.*

Deficits associated with ASD do not typically improve with age. In fact, impairments may intensify as children grow into adolescence and as aspects of their social environments become more complicated (Bolick, 2004; Weiss & Harris, 2001; White et al., 2007). Developmental changes during puberty move an adolescent toward increased responsibility and independence, and physical and hormonal changes are occurring. Even the brain pathways and nervous system change during adolescence, causing the individual to think more abstractly and competently, encouraging him/her to form more accurate self-awareness and search out the social and emotional meaning of his/her experiences (Bolick, 2004; Elder, Caterino, Shacknai, & Simone, 2006). Given that the adolescent's deficits are likely to remain while body, brain, nervous system, and responsibilities or expectations change, it can easily be assumed that adolescence could be an overwhelming time for individuals with autism.

Bolick, (2004) identified some of the primary challenges adolescents on the autism spectrum can face when trying to form and maintain friendships: a) sensory and communication struggles caused them to be "unavailable" during childhood, b) participation in play, parties, and activities are limited due to problems in sensory, emotional, and behavioral regulation and c) some children on the autism spectrum are more interested in pursuing their own interests in their own way than they are in interacting with their peers. In the adolescent and adult stages of life, most individuals

have a greater desire for friendship and romantic relationships and increased work responsibilities that require more community interaction. However, the deficits of individuals on the autism spectrum do not naturally decrease (Alberto & Troutman, 2006; Bolick; Chandler, 2005). Social skills are needed in the workplace, healthy friendships are often the prerequisites for healthy romantic and sexual relationships, and relationships demand many communicative, regulatory, cognitive, and social skills with which adolescents and adults on the autism spectrum struggle (Bolick; Krasny, Williams, Provencal, & Ozonoff, 2003). Therefore, engaging these individuals in interactions and settings designed for the development of such skills is essential.

#### Intervention Literature

##### *Early intensive Intervention.*

Empirical research has found that children with ASD who begin intensive programs by age four are more likely to make greater gains than those who begin after age four (Harris & Handleman, 2000). An example of such a program is the Walden Toddler Program, which uses Applied Behavior Analysis (ABA) principles in the context of natural learning or in the home and is aimed at incidental teaching and social inclusion. Program evaluation data showed an 82% use of meaningful words, and 71% of participants showed improvements in proximity when in the presence of other children (McGee, Morrier, & Daley, 1999).

##### *Behavioral/ Educational Approach.*

Traditional treatment of autistic populations has typically been addressed through the use of behavior modification strategies (McConnell, 2002; Steerneman, Jackson, Pelzer, & Muris, 1996). The theory of behavior modification states that behavior is a

function of its consequences; therefore, by changing the consequences, one can alter the behavior (Wilson, 2005). The top five interventions which could be considered “educational or behavioral” currently being used with children with ASD includes: Speech Therapy, Visual Schedules, Applied Behavioral Analysis (ABA), Social Stories, and the Picture Exchange Communication System (PECS) (Green, Pituch, Itchon, Choi, O’Reily, & Sigafos, 2006; IAN, 2010).

One of the most common and most evidence-based intervention methods used with autism is ABA, which Alberto and Troutman, (2006), identified as a methodical and scientifically reliable approach to teaching and evaluation, and is rooted in principles that demonstrate how learning is influenced by one’s environment. Studies have shown that ABA can improve intelligence test scores and academic performance, as well as language skills (Sallows & Graupner, 2005; Schreibman, 2000).

Lovaas’ (1987) pioneering study produced empirical data about how children with autism were able to learn behaviors and skills through an ABA discrete trial intervention. Lovaas used a group comparison design involving 19 children diagnosed with ASD, and his method design included one-on-one individual child/therapist sessions with 40 hours of direct contact time per week. The data compared individual changes of (a) IQ points, (b) grade level, and (c) teacher reports on the child’s classroom adjustment. Information gathered from this study demonstrated the potential for ASD symptom improvement when structured intervention efforts are both intensive and early. Specific study results showed a 20-point IQ gain and advances in educational achievement, as 9 of the 19 children moved up a grade level and continued to be well-adjusted. Follow-up evaluations conveyed these gains as either maintained or increased (Chandler, 2005;

Fine, 2006; Lovas).

More contemporary ABA intervention strategies also include such important ideas as (a) pivotal response training, (b) incidental teaching, (c) embedded trials, (d) teaching within natural contexts, and (e) utilizing natural reinforcers (positive or negative consequences) (Heward, 2006). While reviewing these areas of contemporary literature, a common element/theme that arose was utilizing naturalistic practices and systematic methodology (Koegel, Koegel, Harrower, & Carter, 1999; McGee, Morrier, & Daly, 1999). In particular, joint attention improvement in ASD children through naturalistic teaching of communication skills has been documented (Goldstein, 1999; Horner, Carr, Strain, Todd & Reed, 2000; Hwang & Hughes, 2000). It seems that the concern with ABA, however, has been the lack of evidence showing that the children can transfer (generalize) the skills learned through behavioral interventions to contexts outside of the setting in which the skills are acquired (Horner, Carr, Strain, Todd, & Reed, 2002).

#### *Developmental Approach*

In developmental interventions, the environment is arranged to promote social interaction and facilitate communication (Bolick, 2004; Heward, 2006). Developmental interactions are child-directed, meaning that the child initiates the activity and the counselor responds (Chandler, 2005). The social awareness and communications deficits with which ASD individuals struggle have found some alleviation and improvement through developmental interventions that are delivered in a group format (Stoner, 2002). An example of a program with this design is The Denver Model, which is centered on a developmental style of intervention and stresses positive affect to heighten motivation and interest. It encourages pragmatic communication through interpersonal interactions

within a structured and predictable environment that most often utilizes play situations. Outcome data showed significant improvements in social communication. When entering the program, 53% of the 31 children between ages 2 and 6 had functional speech. After 6 to 8 months in the program, a 20% gain had been made among the 53%. In addition, 73% of the children displayed functional speech at the follow-up (Rogers & Lewis, 1989).

### *Cognitive Behavioral Therapy*

Research suggests cognitive behavioral therapy (CBT) is an efficacious treatment with issues such as (a) anxiety, (b) depression, and (c) oppositional and aggressive behavior (Chalfant et al., 2007; Compton et al., 2004; Kazdin & Weisz, 1998; Southam-Gerow & Kendall, 2000). CBT is rooted in the belief in an inherent and reciprocal relationship between cognitive processes, affect, behavior, and environmental factors. It is a therapeutic approach that is designed to be both intervention- and client-specific. In other words, the intervention is tailored to the specific needs of the client (Gaus, 2007). Some examples of interventions that may be involved in treatment work that uses CBT techniques include (a) teaching relaxation techniques, (b) identifying negative thoughts and feelings and researching ways to challenge them, (c) role-playing, (d) modeling desired skills, and (e) teaching problem-solving skills (Velting, Setzer, & Albano, 2004).

Current research is beginning to show the potential of CBT techniques in addressing difficulties such as (a) anxiety, (b) anger control (e.g., self-regulation), and (c) social functioning with individuals on the autism spectrum. These findings have come from studies conducted by researchers and professionals, such as Chalfant et al. (2007), whose study of 28 ASD children ranging in age from 8 to 13 found CBT treatment to (a)

reduce worries, (b) reduce emotional-regulatory issues, and (c) decrease anxiety diagnoses. Sorfonoff et al. (2005) reported a study that did not see significant changes in ASD symptoms in the children ( $N = 71$ , 10-12 years old) until the 6-week follow-up, during which time anxiety levels had dropped, social worry had decreased, and children were capable of generating more coping strategies in anxiety-provoking situations.

### *Sensory Integration Therapy*

Due to the restricted ability of the brain's upper centers to regulate its lower sensory-motor centers, many experiences for individuals with ASD become over-sensitive (hyper) or under-sensitive (hypo) experiences (Bolick, 2004; Goldstein, 2000). Individuals diagnosed with ASD are exceptionally prone to a number of sensory difficulties, and many atypical reactions are seen as either (a) over-responsiveness, as when one is unable to tolerate certain sounds, smells, or textures, or (b) under-responsiveness, as when one seems to be oblivious to a stimuli when others are reacting to it (Bolick; Goldstein, 2000; Heward, 2006; Pavlides, 2008). Many children with ASD receive occupational therapy services, most often to improve deficits in motor skill development and address these sensory sensitivities, with the goal being to build up the child's self-regulatory capabilities (IAN, 2010). Groundwork results from a study by Johnson and Meadows (2004) indicated that a few minutes of stroking one's pet dog initiates in humans the release of serotonin, prolactin and oxytocin. As these "feel good" hormones respond, levels of cortisol, the primary stress hormone in the body, decrease (Bardill & Hutchinson, 1997). This research provides an example of one way a therapy animal can provide an opportunity for therapeutic touch.

### *Educational Approaches*

Among the number of educational approaches used to help individuals better manage his/her ASD symptoms, one of the most consistently recognized in the literature as being critical to the successful treatment for youth on the spectrum is the provision of appropriately structured home and educational environments (Bolick, 2004; Bryson & Smith, 1998; Heward, 2006). Pavlides (2008) notes engagement and the generalization of behaviors as the elements most lacking in the outcome data of current educational interventions with ASD. Outcomes improve when interventions are individualized to meet the needs people with autism have and structuring the environment to suit those needs (Bryson & Smith). Children and teens with along the spectrum vary in cognitive abilities, anywhere from mental retardation to exceptionally high. However, difficulty for most high functioning autistic and Aspergers individuals surfaces in the area of working memory. Working memory is the ability to retain bits of information while performing mental operations on the information. Bolick believes that the population can

“... get lost in working memory because their self-regulatory inefficiencies interfere with their ability to pay attention to the information to begin with, perhaps because their communicative challenges keep them from understanding what the other person means or perhaps because of an actual memory deficit” (p. 63).

Typical interventions parents and professionals have structured into the executive functioning life of ASD individuals includes: (a) modifying the environment, (b) addressing sensory needs, (c) note taking, (d) organizing materials and (e) self-affirmations, (f) tasks cards, (g) mnemonics, (h) post routines, (i) chores, (j) visual directions, (k) plan for transitions, and (l) implementing routines (Bolick, 2008; Heward,

2006; IAN, 2010; Minatrea, 2008).

### *Other ASD Literature*

In April 2007, an online research group called the Interactive Autism Network launched its site and introduced its research mission: to collect information online from families of children with ASD. The group hopes that the data acquired can be used to identify effective treatments, as well as to guide decision-makers who are prioritizing funding of treatment research. One survey identified the top 10 treatments (out of the 381 different treatments mentioned) used by families with an autistic child:

- (a) Speech and language therapy
- (b) Occupational therapy
- (c) Applied Behavior Analysis
- (d) Social skills group
- (e) Picture Exchange Communications System (PECS)
- (f) Sensory integration therapy
- (g) Visual schedules
- (h) Physical therapy
- (i) Social stories
- (j) Casien-free diet

### *Concerns and Limitations*

The most recent APA (1994) Division 12 Task Force on Promotion and Dissemination of Psychological Procedures developed criteria for establishing empirically supported treatments of ASD. For a treatment to be considered “probably efficacious,” the following criteria must be met: (a) at least two randomized between

group design studies or a series of case studies; (b) replication by independent researchers or research teams; (c) a comparison or control condition (not medication); (d) thorough documentation, replicable procedures, or a treatment manual; and (e) a clearly defined population and problem. Additional suggestions included (a) documentation or evidence verifying professional training and treatment protocol, (b) the use of more than one outcome assessment, and (c) long-term or follow-up data.

### *Autism Literature*

Evidence compiled by the World Health Organization (NIMH, 2001) suggested that by 2020, childhood neuropsychiatric disorders, internationally, will increase by at least 50 percent, as well as rank among the five most common causes of morbidity, mortality, and disability among children. These numbers are particularly disturbing when added to this reality:

“Most of the treatments and services that children and adolescents typically receive have not been evaluated to determine their efficacy across developmental periods, and even when clinical trials have included children and adolescents, the treatments have rarely been studied for their effectiveness in the diverse populations and treatment settings that exist in this country” (NIMH, 2001).

ASD treatment literature lacks reliable information regarding the efficacy and aptness of assumed interventions. Unfortunately, autism’s history has been such that many treatments and intervention techniques have been rushed to market before an appropriate amount of data regarding their safety and effectiveness was amassed (Heward, 2006).

Many intervention strategies have been developed for working with children with

autism, yet most of the empirical evidence available regarding intervention outcomes are found within ABA literature. Other programs, such as (a) the Greenspan approach, (b) the TEACCH Model, (c) LEAP, and (d) the Walden Toddler Program (Greenspan & Wieder, 1997; Heward, 2006), have demonstrated some success and gained reputable status. The TEACCH program, for example, has existed for over 30 years (Panerai, Ferrante, & Zingale, 2002). Though building from some degree of empirical knowledge, even programs structured around ABA concepts and practices have been criticized due to their methodology and data-gathering techniques (Harris & Handleman, 2000). The limited empirical data, marketable influences, and compilation of literature findings have revealed that, despite the many intervention strategies practiced and programs relied on to assist in the development of children with ASD, empirical studies and data which adhere to APA Division 12 Task Force standards are lacking.

#### *Animal-Assisted Therapy*

Studies evaluating effectiveness of AAT share several common shortcomings. Kruger (2002) believed that animal-assisted interventions are best described as “a category of promising complementary therapies that are still struggling to demonstrate their efficacy and validity” (as cited in Fine, 2006). Few practitioners in the AAT field are trained in research methods, and even fewer possess adequate funding to conduct the kinds of studies needed to establish animal-assisted interventions as empirically supported treatments for mental disorders (Kazdin & Weise, 2003). First of all, a clear, standard definition for *animal-assisted intervention* in a clinical, therapeutic setting is lacking. Second, also missing from the field are (a) a unifying set of practice guidelines, (b) shared consistent terminology and (c) a widely accepted and coherent theoretical

framework that explains how/why using animals as an intervention is potentially therapeutic. Third, most of the treatments and services that children and adolescents typically receive have not been evaluated to determine their efficacy across child through adult human developmental stages. Fourth, the methodologies used to study AAT effects are weak, which raises doubts regarding validity. Study size tends to be small and unrepresentative; and adequate control groups are rare (Kruger, 2004). Finally, there is a marked lack of scientific control and precision, as much of the information available is qualitative or anecdotal in nature (Law & Scott, 1995).

For the field of AAT to no longer suffer from poor research design and, therefore, progress as an empirically supported therapeutic practice, dedication to efficacy and thorough research by appropriately trained clinical researchers is essential (Kruger, 2004). Along with concerns regarding the limited quantity of empirical research comes the additional worry that much of the research thus far is self-published or has depended heavily on group/program affiliation and/or funding agencies. As a result, the need is for research that incorporates scientific protocol in AAT studies, including (a) clearly defined goals, (b) appropriate instrumentation for data measurement and documentation, (c) adequate sample size, (d) a control condition or group (Martin & Farnum, 2002; Voelker, 1995), and (e) peer review and reproducible or manual formats.

While a number of credible submissions have been examined by respected professionals in various fields, very few of these hypotheses have been empirically calculated. When viable prospective ideas, such as therapy animals as agents of (a) de-arousal, (b) attachment and transition, (c) social facilitation and support, (d) expression, (e) engagement, (f) retention of focus, and (g) motivation and learning, are not

scientifically evaluated, then the cost is delayed progression of quality service to individuals who could benefit from AAT, especially those with ASD.

### Summary

The research reviewed in this paper provides an overview of the benefits accrued from, and concerns with, professional utilization of therapy animals (application of AAT). It draws from interdisciplinary research and professional accounts, to consider how therapy animals might be utilized to assist in generating a level of relational functioning in which individuals with autism are able to communicate and participate in life more fully.

The number of children diagnosed with ASD continues to rise, and professionals still have only minimal insight into the cause of this condition (Fombonne, 2003; Heward, 2006). The manner in which ASD manifests itself in individuals continues to be heterogeneous, and treatment tends to be further complicated by the array of co-existing medical and mental health issues of this population (APA, 2000). Historically, treatments would tend to involve (a) behavioral modification/ABA, (b) structured and predictable environments, (c) early and intensive educational, (d) pharmacotherapy and diet, (e) speech/language therapy, (f) occupational therapy, (g) sensory integration, and (h) social skills programs.

Animal-assisted interventions are designed to be an adjunct to the general treatment approach utilized by clinicians. Research provides an indication that the use of AAT may offer physiological, emotional, social, and physical aid for a number of populations Chandler, 2005;. Outcome and anecdotal evidence in the literature support AAT interventions most when there is a need for (a) therapeutic rapport and a safe

environment, (b) comfort and non-judgmental emotional support, (c) anxiety and stress reduction, (d) engagement, (e) attachment or bonding (f) social development (g) communication skill development, and (h) sensory integration/therapeutic touch (George, 1988; Martin & Farnum, 2002; Winnicott, 1986), and the counseling professional has the opportunity and capability to involve AAT as a therapeutic adjunct into almost any therapeutic idea and modality (Chandler, 2005). The general assumption underlying the unique benefits of AAT are found in the combination of: an agent for direct (live) and spontaneous relational interaction, while also being immediately perceived as safe, comforting, non-judgmental, engaging and devoid of the obstacles or conjectures they experience with human relationships (Martin & Farnum). It is the combination of those elements which seems to set AAT interventions apart from other therapies.

## CHAPTER 3

### Methodology

Chapter three describes the process used to accomplish this research project. Search strategies, delineation of the literature, writing guidelines, ethics and limitations are reviewed. This project did not mandate subject/ethics approval, because no one was interviewed, no surveys were administered, and there involved no collection of original data. The author adhered to APA publication standards (APA, 2005) in the writing of this research report.

To begin an investigation of the literature, a systematic and exhaustive search strategy was carried out to gather the research which has been conducted on the topic of Animal Assisted Therapy with Autism Spectrum Disorder populations. This investigation began with a basic Google Scholar search of published materials from the year 2008 until 2010, excluded patents, and was for the sake of identifying key search terms and current topics of interest that would be utilized when researching academic and professional peer reviewed journal articles and publications. What was found during this initial effort included 130,000 references at this time, included 18,000 articles. After breaking down the original search phrase “ATT with ASD populations” into two separate search terms (“animal assisted therapy” + “Autism spectrum disorder”), only 8 out of the 18,000 articles remained. These 8 articles were saved.

The second step involved conducting a search for literature specifically about animal assisted therapy, published in journal articles. Using Academic Search Primer/EPSCO host, the search resulted in the identification of 942 articles. The list of 942 articles was reduced down to 316, after the author limited the search to only those

articles that included animal assisted therapy (AAT) in the title. The list was further concentrated to 50 articles, after limiting the results only to those written/published after the year 2000. This article list was then, saved. Utilizing the same search engine, articles written between 2009 and 2010, with the word *autism* in the title, and with the assistance of full text and references available, yielded 1,735 articles (PsychINFO, ERIC, Medline, Nursing Journals) which were also saved.

Continuing to search for literature utilizing EBSCO host, the author searched for peer-reviewed works on the subject of *autism* (using that term only) as it appears in the literature title, dating from 2000 – 2010. This effort yielded 125 articles. Fifty six of the 125 were published between 2008– 2010. Those 56 articles were saved. Utilizing the same process with the term *Aspergers* in the title, the investigative search resulted in 91 scholarly articles published within the past year (2009 – 2010).

The above methodology resulted in 1,930 articles saved. This list was refined through the review of article titles and, a review of abstracts. The list was tapered down by the author's decision to eliminate from the initial list, those articles in which the content did not offer qualitative or quantitative data that could contribute to understanding processes and/or elements relevant to the use of AAT with the autistic spectrum population. It is important to note, here, that the research literature that focused on AAT were considerably scattered across a wide range of professional disciplines such as psychology, psychiatry, nursing, geriatrics, social science, alternative medicine, corrections/behavioral science, animal welfare, veterinary medicine, zoology, addictions, education, and physical and occupational therapy.

Empirical research regarding counseling intervention efforts made up a small subset of the available literature on AAT. This search necessitated the author's use of additional scientific databases, and online resources like Google Scholar, to investigate related terms (such as service dogs, pet therapy, and animal assisted interventions), as well as web articles, professional associations and publications, books, and a manual search of relevant works cited as references and specific authors. Key search terms included: animal assisted therapy, autism, Aspergers syndrome, ASD, pervasive developmental disorder, animal assisted intervention, pet therapy, therapy animal, animal assisted counseling, intervention, treatment, counseling, and combinations of these.

The main limitations in this gathering process included lack of empirical research data, inconsistent terminology and practice among the different disciplines and programs utilizing animal assisted therapy (AAT) as an intervention. Researcher biases, in the form of literature selection may affect, to a degree, the "comprehensive" nature of the review.

## CHAPTER 4

### Proposal for Clinical Implementation

Chapter Two pointed to the common deficits and developmental challenges faced by individuals diagnosed along the autistic spectrum. These challenges included social awareness and interaction, communication, problematic behaviors, sensory-motor and life-span struggles. Various programs, schools and professionals have pursued a number of interventions designed to address these challenges. Literature regarding AAT is limited in the amount of research data available, however, numerous anecdotal and qualitative reports communicating AAT's many benefits. The beneficial aspects of AAT that will be highlighted in this proposal include improved communication and social relationships, naturalistic teaching, transitions, and emotional catalyst. Based on what has been revealed from the synthesis of AAT and Autism literature, the following proposed model for implementation answers the question, how might a school counselor facilitate AAT in an educational setting with teens with HFA/AS?

This chapter will be organized to answer the research questions driving this manuscript, primarily: (a) Which aspects of Animal Assisted Therapy (AAT) have empirical studies supporting it as beneficial? (b) Which aspects within the Autism/Aspergers intervention literature are empirically supported as beneficial? (c) What is the current status of Animal Assisted Therapy (AAT) research with individuals diagnosed with high functioning autism or Aspergers Syndrome (HFA/AS)? (d) Based on the review of the literature, how might a counselor operationalize AAT in a traditional and/or therapeutic school setting with HFA/AS?

### Empirical Support for AAT

The body of research literature on animal assisted therapy lacks the data necessary to be considered a validated intervention, yet there is a solid body of preliminary support for benefits that can come from this therapy. Research has indicated that AAT: (a) encourages physical and physiological betterment by lowering blood pressure and stress levels in both children and adult hospital patients (Anderson et al., 1992; Barker & Dawson, 1998; Chalfant, et al., 2000; Friedman, et al., 1980; Hansen et al., 1999), (b) assists in the forming of relational bonds as a transitional object between client and therapist (George, 1988; Katcher, 2000; Winnicott, 1986), and (C) engages individuals in the therapeutic experience by positively affecting one's attention, focus, motivation, and attending behaviors (Bauminger, 2002; Beaumont & Sofronoff; Katcher & Wilkins, 1998; Martin & Farnum, 2002; Nathanson, et al., 1997; Redeker & Goodman, 1989). This small pool of AAT research appears to exhibit some initial evidence that therapy animals may offer a calming, engaging, relational presence which, in turn, serves to improve one's health, mood, skills, and social development.

#### Beneficial Autism/Aspergers Interventions

While there remains much heterogeneity in the individual expression of those labeled "autistic," all typically exhibit some degree of impairment in communication and social interaction and engage in repetitive, stereotypical behaviors throughout the course of his/her life (APA, 2000). Those on the spectrum need the help of others who seek to understand the individual needs, can support and appropriately educate these family members, friends and community members. There is currently much interest in increased understanding of this disorder, and in improving services given to the population, and there is a need for both. Although not comprehensive in addressing all ASD symptoms at

once, research has shown some evidence of effective intervention efforts. The intervention literature which is most supported as beneficial in lessening autistic symptoms and developing pro-social behavior includes: (a) early intensive intervention (Harris & Handleman, 2000; Heward, 2006; Sallows & Graupner, 2005; Schreibman, 2000), (b) applied behavioral analysis (Elder, et al., 2006; Krasny, et al., 2003; Lovaas & Smith, 1987; McConnell, 2002; Rosenwasser & Axelrod, 2001; Steerneman, Jackson, Pelzer & Muris, 1996; White, Koenig & Scahill, 2007), (c) appropriate/accommodating educational placement and structured environments (Bryson & Smith, 1998; Howlin, 1998; NRC, 2001) (d) and biological treatments (Heward, 2006; Matson & Dempsey, 2008). Two other less supported, but noteworthy efforts are (e) sensory integration therapies, generally utilized to encourage emotion regulation (Heward, 2006; IAN, 2010) and (f) training in social skills and pragmatic communication (Bellini, Peters, Benner, & Hopf, 2007; IAN, 2010; Weiss & Harris, 2001).

#### State of AAT Research with HFA/AS Populations

There is currently support for the idea that AAT might positively influence the behaviors and mood of children with an Autism Spectrum Disorder (ASD) (Law & Scott, 1995; Nathanson et al., 1997). To date, the sparse empirical research has focused on children and adolescents with ASDs, not adults. According to data attained from various studies, potential benefits for this population include: (a) a unique gateway for the autistic child to form relational bonds, (b) encourages attentiveness, focus, engagement in-the-moment in therapy, and (c) fosters communication, pro-social behaviors and a decrease in autistic symptoms (George, 1988; Levinson, 1962; Martin & Farnum, 2002; Nathanson, 1998; Redefier & Goodman, 1989).

## AAT Operationalized in a School Setting

### *Program Rationale*

This proposal provides an outline for clinical trial (reproducible) that utilizes AAT as an adjunct to therapy with adolescents/teens with high functioning autism (HFA) or Aspergers Syndrome (AS). Fine (2006) provides guidelines for those professionals who choose to incorporate animals into therapeutic work and suggests 3 basic interrelated functions:

- (a) As facilitators of social interaction
- (b) As catalysts for emotion
- (c) As adjuncts to clinicians

### *Target Population HFA/AS Teens.*

HFA/AS teenage students were chosen as the target population for the implementation of this proposed treatment/educational plan for several reasons including need for intervention research and the characteristic need of autism for supportive services throughout lifespan, especially at times of important life changes and educational/career transition planning. In addition, counseling and AAT professionals have recently considered HFA/AS teens as an adolescent population with high potential for successes with an adjunctive AAT intervention program. Therefore, the proposed program design within this paper has been formulated out of the literature, research professional recommendations, as well as results from a randomized clinical trial which summer social development program for HFA children (Lopata & Thomeer, 2010

*Proposal: AAT with HFA/AS high school students*

This proposal draws from the review of the literature in order to answer the question: How might a school counselor facilitate AAT in an educational setting for teens with AS/HFA? To ensure the implementation of this trial educational intervention (or series of clinical trials) in a manner that is fashioned in accordance with the data-supported literature, criteria for determining effective treatment (APA, 1993), while also seeking to take a step towards addressing the needs of teens with AS/HFA, the current design utilizes applied behavior analysis (ABA) principles to teach targeted social skills and provide the foundation for reliable data collection. The design involves adding AAT to an existing multi-component therapeutic environment (ABA social skills group and individual therapy sessions), and comparing the results to what would be expected from ABA social skills training group treatment alone. Incorporating animals into a therapy that is already empirically-supported and has a structured protocol, such as ABA, will help to distinguish the specific ways that the therapy animal(s) contribute to the therapeutic process, as this methodology (augmentation) provides the researcher/counselor with the ability to isolate and evaluate specific components.

Social skills groups are shown to increase comfort levels in AS/HFA teens, as well as improve outcomes in skill acquisition and generalization and social functioning (Bauminger, 2007; Bolick, 2004; Bryson & Smith, 1998; Lopata & Thomeer, 2010). The proposed program has essentially three components: a) Individual counseling sessions twice a week with school counselor, b) Daily classroom charting/homework, and c) An end-of-day or afterschool social skills development group five times per week (Mon.-Fri.). Components (a) and (b) are carried out according to the specific needs, IEP goals and transition plan and therapy goals of the student. The school counselor oversees

implementation of each component. Component (c) reflects a combination of elements which have been found (mostly non-empirical) to be beneficial for individuals with AS/HFA. These elements include: small group social skills training (modeled after ABA), collaborating with peers in a predictable and structured activity, tailored volunteer/work experience, animal assisted activities, and a reward/reinforcement system. All three program components, when combined, provide the number of hours needed for the design to meet the ABA required “high intensity” status.

#### *Component Breakdown*

*Component (a).* Students will attend individual school counseling sessions utilizing AAT twice a week. The school counselor will meet with the AS/HFA teen for one hour, two times per week. Sessions will utilize a therapy dog (same dog each session) as an adjunct (“co-therapist”), to the counselor’s chosen therapy style/plan within a school environment. Teaching of skills, in both individual and group sessions, will adhere to measurable ABA principles. Individual counseling sessions will generally focus on identifying needs, forming goals, and encouraging the development of daily living skills, pragmatic communication, emotion regulation, and transition planning. The therapy dog can be utilized by the counselor in a number of ways such as: student/counselor rapport building, encouraging participation, focus, motivation, safe/comforting environment, fun, physical exercise, role playing, care-taking, teaching the student about the ABC (antecedent – behavior – consequence) process as the student observes the dog being given a command/antecedent, the dog’s behavior, and the response/consequence that the dog receives (ex: a “treat”), or sensory integration (therapeutic touch). Both the indirect effects and direct responses of the student’s interaction with the therapy dog are to be

consistently recorded for each session using clinician-selected assessment instruments. The counselor will choose how to utilize the therapy dog based on the student's needs, goals.

*Component (b).* While in the classroom setting, the students will continue to practice the individualized target skills decided upon by the counselor, student, and other members of the student's educational team (which will typically be similar to the skills taught/practiced during group time, explained in the component that follows). Component (b) is to act as an extension and reflection of the work done during individual/group therapy sessions, as the student applies and/or practices emotion management, behaviors, and/or learned skills. Component (b) will not involve the therapy dog. The nature of this component is similar to the idea of a counseling "homework" assignment, while also naturally providing the opportunity for data collection through selected means such as: behavior charting, emotion/feelings scales, journaling, teacher, staff, and/or student surveys or assessment/evaluation forms. However, it will be important for the classroom teacher or aid to assist and monitor the student, and oversee the consistency and accuracy of the "record keeping." While this method of visually recording and documenting, by its nature, is likely to provide the student with a degree of immediate feedback/reward, there is the option of including a variety of additional positive reinforcement given to the student by him/herself, the teacher/aid, peers, etc. as deemed appropriate by counselor and educational staff. For components (a) and (b) to work together as designed, there must be professional collaboration and consistency in follow through within the educational team, and the student should be made aware of each members roles.

*Component (c).* Group members will attend a social skill group, Monday through Friday, after school (or as the final class of their day). This component utilizes the group experience, community and peer interaction, therapy dogs, task management, and service-learning experiences, in order to support the development of HFA/AS teen participants in learning and improving upon social interaction and communication deficits, build “real world” social skills, and work towards their personal and educational goals. For this small group, (ideally four to six AS/HFA students) students will begin by meeting together as a group, with the counselor and other trained adult staff (including animal handlers), to go over the day’s activity/plan, as well as a brief review of rules and expectations, and then moving into the intensive skill building session. After the skill building session, students will divide into their assigned pairs/partners, and go to their service location with the therapy dog and trained handler/adult staff in which they are assigned to. When arriving at their service location, the team (students, dog, and handler) will carry out the assigned task given to them. It is important to note that their team’s therapy dog is the same dog utilized during the student’s individual counseling session at school. Therefore, they are familiar and comfortable with, and to some degree, likely feel a bond with the dog and their “team.” The therapy dog handler will be present to simply oversee and maintain a safe environment and provide reminders/encouragement if needed. The aim is for the handler to be present, but as little involved in the actual activity as possible, as the students work towards skill mastery and independence. During this time, feedback and reinforcement is to be received and given by peers, therapy animal, and community being served. Documentation/record of these may be assigned to the adult staff/handler present, or may be a responsibility given to the students themselves

if deemed appropriate. Daily/weekly service activities assigned to the student teams are simplistic, generally one to two component/tasks per week, which are to model after the Applied Behavior Analysis (ABA) method of teaching through discrete trials. Student teams will be assigned to a location such as a hospital, nursing home, day care or children's program, camp, or any appropriate and safe office/business within the community. Many HFA/AS teens do better socially with either younger or older people (Bolick, 2004), and this should be a consideration the when determining service locations. Teams will then carry out their "task of the day." This task is to involve no more than two steps/components, and is for the purpose of providing the students with the opportunity to practice the skills taught at the beginning of the group during the skill building session. Possible tasks are not limited to, but may include: reading to a kindergarten class, deliver flowers or treats to residents at a nursing/assisted living home, playing the piano or checkers at a senior center, or dressing up the therapy dog and taking treats to a children's hospital during a holiday. Tasks are to be socially interactive, so the students can practice the social skills. A task such as picking up trash in an area, in and of itself, would not be an appropriate assignment unless it included an interactive component. The roll of the therapy dog is, generally, to act only as a familiar and supportive presence/team member, but may, in addition, act as a "social lubricant" by being available as topic that initiates a conversation that the students are likely to feel more comfortable or excited to talk about. All of the teams will gather back together at the end of the day to concisely debrief experiences, recognize difficulties and accomplishments, and fill out self-evaluation forms (data gathering).

#### Additional Aspects of the School Program

### *Data Gathering*

Specific instrumentation to measure outcome data, based on individual treatment goals and skill acquisition, will be finalized by the counselor. Outcome measures might include number of social initiations made, number of conversations in which a student is able to take conversational turns, any recoding of number of times a student correctly performed a (specified) skill, student assessment forms, feelings chart, teacher or parent observation forms, measures of loneliness, maladaptive behavior, or instrument which evaluates intensity of autism symptoms. This proposed design has the potential to be developed into a program manual, providing for repeated implementation and, in turn, the ability to evaluate the effectiveness of its program components in utilizing AAT with HFA/AS high school students.

### *Literature Support*

Pervasive developmental disorders are lifelong conditions. Despite whatever gains in learning, communication and emotional regulation were made during the childhood years, the start of adolescence surfaces new challenges for one with HFA/AS. The majority of autism intervention research has focused on helping children, while attending much less to the fact that autistic children grow up to be autistic teens and adults in need of life-long support (Rosenwasser & Axelrod, 2001). Although much of the research can be generalized to the deficits of individuals with AS/HFA at any age, evidence-based intervention services for specifically to design the unique needs of adolescents with autism and Aspergers are uncommon (Pavlidis, 2008). However, adolescence happens to be a developmental stage in life with a distinctive combination of struggles, affecting a person's life both outside and inside school (Bolick, 2004).

HFA/AS teens undergo the same physical and hormonal developments that all adolescents confront, however, the increase of psychological difficulties such as depression and anxiety, along with increasing conduct problems and substance abuse issues, typically observed in adolescence, is often even more problematic of a struggle for those diagnosed with Aspergers/HFA (Bolick). When one recognizes the challenges typically introduced to the therapeutic process and counseling relationship by the “typical” adolescent and teen developmental/hormonal experiences associated with this life stage, then adds to that the complexities of Aspergers/HFA deficits in learning, executive functioning and pragmatic communication, along with the archetypal struggles with self-regulation, complex cognitive processing, problem solving, and sensorimotor challenges, (Chandler, 2005; Fine, 2006; Pavlides), the duty of supporting an individual with AS/HFA though out the lifespan and making pathways available for them that reach beyond early intervention and childhood and extend into the teenage and adult years, there rests a compelling argument for encouraging counseling intervention research toward the allocation of time, energy, and funding to this pivotal stage of HFA/AS life. In addition, the tendency for therapy animals to act as natural transitional objects and socializing agents, primes AAT as an instrument with strong potential in providing age- and developmentally-appropriate learning and support (Pavlides).

*Supported by professionals*

The Center for Interactions of Animals and Society at the University of Pennsylvania School of Veterinary Medicine hosted a conference in 2004, which

included workshop development of a model protocol for a study comparing an AAT social skills group, with a control group participating in traditional social skills training (Pavlidis, 2008). The AAT group, made up of four students, two animal/handler teams, a teacher and a therapist, met for one-hour each week for 30 weeks, and focused on care-taking, perspective taking, and interacting with the therapy animal. It also included a parent-training component, where parents attended both groups one evening a month. Outcome measures included standard measures of depression, theory of mind, communication, and those specific for Asperger's symptomology (Pavlidis).

Recently, Lopata and Thomeer, (2010), co-directors of the Institute for Autism Research at Canisius College, conducted a study which supplied data from a randomized clinical trial examining the efficacy of a manualized five week multi-component summer social development program aimed at improving the social performance of children (ages 7-12) with high functioning autism spectrum disorders. The study design involved a five week long summer camp in which children attending five days per week, and received treatment in the form of five, 70-minute cycles per day that consisted of a 20-minute intensive skill building session which included direct instruction, modeling, role-playing, and performance feedback. These sessions were followed by a 50-minute therapeutic activity designed to practice and reinforce the target skills. A point system was used as a reinforcing agent, and weekly parent education was given to teach parents intervention strategies. A research team has evaluated the efficacy of this program in a series of increasingly controlled studies, and the general pattern of data suggested that children in the treatment group improved significantly in their understanding of what targeted social skills to use (e.g., conversational skills, giving a compliment, recognizing another's

feelings) in a range of social situations, understanding of abstract language, more likely to engage with others, as well as exhibited a significant reduction in autism-related features, as compared to the control group (Intensive treatment, 2010; Lopata & Thomeer, 2010).

### *Data Mining*

Applied Behavioral Analysis (ABA) is currently one of the only effective and accessible evidence-based treatments for individuals diagnosed with an autism spectrum disorder (O’Conner, 2000; Rosenwater & Axelrod, 2001). Different “stylistic” versions of ABA have evolved over the years, but the foundational elements that distinguish this method of intervention include: a) high intensity (25-40 hours per week), b) focused on teaching specific skills by discrete trials (b) breaking down a desired skill into components, mastering the most basic component first via drills, then adding the next step...eventually leading to the goal behavior, and c) some form of positive reinforcement for correct responses (Pavlidis, 2008). These three elements establish the teaching design rationale (proposed in Chapter four) for implementing AAT. ABA offers an empirically reliable protocol, along with the ability to isolate and measure the impact of the inclusion of AAT as an adjunct to therapy with HFA/Aspergers adolescents.

### *Educational Standards and Services*

In order to meet the educational needs of all students, the U.S. government mandates that students enrolled in special education programs be provided with an Individualized Education Plan (IEP), which outlines student deficits and needs, then incorporates a plan for appropriate accommodations and services. Transition goals are required to be included in a student’s IEP beginning at age fourteen, and services aimed

at working towards the transition from high school to adulthood are exceptionally important for an adolescent with AS/HFA to be successful. The school counselor is typically a key figure in the design and facilitation of transition planning and services. Because of the relational and comforting nature of therapy dogs, along with the research indicating their potential as transitional objects (Katcher, 2000), the proposed model for implementation of canine therapy, naturally fits within the AS/HFA student's transition plan, and IEP goals.

#### Implications for Future Research and Practice

The current review and synthesis of literature is intended to enhance the professional counselor's understanding of the current status of Animal Assisted Therapy. The current review holds clinical implications for working with children and adolescents with high functioning autism and Aspergers syndrome. Individuals with an Autism spectrum disorder experience life-long challenges with social interaction and communication. Very few treatment interventions have demonstrated efficacy in meeting the social development needs of this population. The literature, included within the current review, indicates that animal assisted therapy may be effective as an adjunct to therapy with individuals along the autism spectrum disorder, especially those categorized as "high functioning" or with Aspergers Syndrome. The use of a therapy animal may assist in engaging and building rapport with this population, and aid in times of transition.

Unfortunately, methodological issues taint the bulk of AAT research and prevent reliable conclusions from being drawn. The fledgling research suggests, however, that unique benefits (ex: social communication, transition assistance, emotional regulation)

may exist as a result of incorporating AAT into the program design, educational goals, and counseling sessions of educational programs.

Strengthening future research designs and conducting additional empirical research are critical to give strength to and enhance support for AAT interventions with people on the spectrum. An ethical AAT counseling intervention requires empirically supported standards of practice, reliable instrumentation for affect measurement, generalized behaviors, and manualized intervention designs. The proposed design found in this chapter has the potential to be developed into a program manual, providing for repeated implementation and, in turn, the ability to evaluate the effectiveness of its program components in utilizing AAT with HFA/AS high school students.

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