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Animal-Assisted Therapy and the Child-Animal Bond: Children's Well-being and Behavior

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ANIMAL-ASSISTED THERAPY AND THE CHILD-ANIMAL BOND: CHILDREN'S
WELL-BEING AND BEHAVIOR

by

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B.S., Southern Illinois University Carbondale, 2004

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A Research Paper

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

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Introduction

Animal assisted therapy (AAT) is defined as a goal-directed intervention in which an animal that meets specific criteria is an integral part of the treatment process (Delta Society, 1996). AAT is directed and/or delivered by a health/human service professional with specialized expertise, and within the scope of practice of his/her profession (Delta Society, 1996). AAT is provided on an individual basis, has a set plan in place, notes are taken to monitor progress and typically appointments are scheduled (Delta Society, 1996). Research demonstrates a positive relationship between AAT and areas of language development (i.e. stuttering and delayed speaking) and autism (Chandler, 2001; Solomon, 2010). Qualitative studies demonstrate dogs can enhance communication, increase joint attending, decrease stress, increase self-esteem, and increase motivation (Chandler, 2001). Other studies describe the benefits of including AAT with children with autism (Solomon, 2010).

Boris Levinson (1969) was the first psychiatrist to document the therapeutic benefits of playful interaction with children with autism and a dog. At a meeting of the American Psychological Association in 1961, Levinson, a child psychiatrist at Yeshiva University Medical School, proposed the argument that playful interaction with dogs can improve sociocommunicative abilities of children with autism. Later, Levinson (1997) actually incorporated his dog into individuals' treatment plans.

Unfortunately, there is little quantitative scientific research exists to confirm its effectiveness. Many studies of the use of AAT lack solidarity because of small sample size, inability to maintain protocols, lack of quantitative evidence, and evidence leading to inconclusive results. Typical language development treatment plans and autistic spectrum disorder treatment plans including AAT deal more with addressing behavioral issues, making it

difficult to measure a cause-effect relationship between the inclusion of AAT and change in behavior.

General AAT Procedure

Risley-Curtiss (2010) surveyed what clinicians know and are doing in the area of AAT. The author surveyed 4,991 clinicians and received 1,649 responses (a 33% response rate). Of the 381 respondents that included AAT in intervention, 143 of the respondents identified as clinicians with a B.S., M.S., or PhD (Risley-Curtiss, 2010). The mean age of respondents was 53 years with a standard deviation (SD) of 7.8 years. The survey included questions about AAT in assessment and treatment in a yes/no format. Results indicated that approximately one-third of the clinicians included questions about companion animals in their intake assessment, and a little less than 25 percent included AAT in their intervention (Risley-Curtiss, 2010).

According to the survey findings, clinicians felt that clients opened up more when animals are included in therapy. The study also revealed that clinicians are hesitant to start AAT because AAT training is currently unavailable (Risley-Curtiss, 2010). In addition, certification through major agencies (e.g., Therapy Dogs International or Delta Society) is lengthy and requires extensive handler and animal training.

AAT and Autism

Prothmann, et al. (2005) conducted a research study concerning the use of animal-assisted therapy (AAT) in children with autism. Specifically, Prothmann, et al. (2005) observed child behavior, social interaction with the animal, and staff perceptions of AAT and the impact it has on children.

Twenty children between the ages of 6 years and 19 years participated in the study. Ten children were included with the diagnosis of autism spectrum disorder (2 females and 8 males;

average age of 12.3 years). Ten children were included with a diagnosis of anxiety disorder (6 females and 4 males; average age of 12.3 years).

The study found highly significant differences between the groups (include p-value, $p=X$) on mean duration of visual contact towards the dog (Prothmann, 2005). Although children with autism looked more often at the dog than did children with anxiety disorders, the visual contact phases were so brief and fleeting that the total duration of visual contact with the dog was a third less than that of other clients (Prothmann et al., 2005). The mean duration of conversation with the dog did not find significant results between the anxiety disorder group and the ASD group.

The authors concluded that there were significant differences in children's eye gaze and behavior toward the dog. In addition, clinicians observed that clients in this group actively sought physical contact with the persons present (Prothmann, et al, 2005).

In 2009, Prothmann, Etrich and Prothmann conducted a study that observed child response when given the choice to interact with a person, a certified therapy dog, or an object (e.g. toy). This study included 14 children with autism (3 females, 11 males) with a mean age of 11.4 years. The authors conducted three tests using AAT in therapy for children with autism. These tests included: initiating interaction, reaction to interaction, and nonsocial behavior. Each child was evaluated three times and the response ratio (RR) for interaction with a person, a dog, and an object was calculated. The RR for the particular stimulus (i.e., person, dog, or object) was equal to all interactions with the stimulus divided by the sum of all observed interactions with the three stimuli. The mean frequency RR was 36.32 (SD +/- 19.7) for the person, 104.79 (SD +/- 71.7) for the dog, and 5.76 (SD +/- 8.9) for the object. The data indicated that children interacted most frequently with the dog, followed by the person, and then the object (Prothmann et al., 2009).

Finally, the authors reported that all of the children talked to and felt or patted the dog. Many of the children initiated reciprocal interactive play, such as throwing or rolling a ball, giving the dog treats, or hiding treats or objects for hide-and-seek (Prothmann et al., 2009). In addition, socially isolated and self-stimulatory behavior decreased over the course of the three tests. The authors reported no significant findings regarding children's reaction to the dog's invitation to play.

AAT and Language Delay

In 2006, Boyer studied the efficacy of using animal-assisted therapy (AAT) to encourage generalization of targeted language behaviors to dyadic peer interactions between children with language impairments and neurotypical children. This study was designed to analyze the effects of three reinforcers: a toy animal, AAT, and a client's preferred item (Boyer, 2006). Boyer (2006) included three female participants, with ages ranging from four to eight years, and three neurotypical peers, ranging from four to eight, where the participants could demonstrate social interaction through verbal initiations, verbal responses, verbal continuations, and non-task related verbal productions. Language assessments found each client exhibited a receptive and/or expressive language delay and expressive and receptive language therapy was provided during the study (Boyer, 2006).

Boyer's 2006 study included four research questions. The first question concerned the use of AAT compared to a preferred item or toy animal. Specifically, would the use of AAT increase verbal initiations when incorporated into peer play activities? The author found that participants decreased or did not show significant difference in verbal initiations with the use of AAT. The second question concerned the use of AAT in the presence of a neurotypical peer. Specifically, would the use of AAT (compared to preferred item or toy animal) increase verbal

responses when the neurotypical peer initiated verbal interaction? The author reported no comparative benefit to using AAT. The third question concerned the use of AAT and whether or not it would increase verbal communication exchanges (e.g. more than initiation-response) between the participant and neurotypical peer compared to the use of a preferred item or toy animal. The author reported inconclusive data for one participant after they exited the study. The two other children demonstrated some benefit for the AAT condition (Boyer, 2006). Lastly, Boyer (2006) asked, do children with language impairments participate more or less in verbal communication exchanges that are considered non-task related during dyadic interactions with a neurotypical peer? The purpose of assessing non-task related behavior was to determine if verbal behavior became more diversified in terms of topic as the study progressed (Boyer, 2006). The author concluded there is no solid evidence that AAT results in more or less non-task related utterances than either the preferred activity or the toy stuffed animal.

Boyer (2006) administered a teacher rating scale periodically, which measured the participant's social validity of target behaviors outside the therapy session. The questions developed examined the degree with which each participant demonstrated various behaviors in the classroom including interactions with peers, responding to peer initiations, and continuation behaviors including responding to questions and asking questions when necessary (Boyer, 2006). In addition, Boyer presented a final teacher rater question that examined the consistency of classroom time devoted to encouraging interactive play between peers. Overall, the rating scale indicated improvement during therapy for each of the participants (Boyer, 2006).

Macauley and Gutierrez (2004) study examined the effectiveness of hippotherapy versus traditional therapy for children with language-learning disabilities. Hippotherapy refers to treatment with the help of a horse and is derived from the Greek word *hippos*, meaning "horse"

(Macauley & Gutierrez, 2004). In Macauley and Gutierrez (2004), the clinicians had clients sit on the horse's back and physically accommodate to the three-dimensional movements of the horse's walk. The premise behind using hippotherapy is a person's affect changes how the brain processes information in that, if an activity is pleasant, it is easier to do, and if an activity is unpleasant, it is inherently more difficult (Macauley & Gutierrez, 2004).

Macauley and Gutierrez (2004) examined the effectiveness of hippotherapy versus traditional therapy for children with language-learning disabilities. Three boys, ages 9, 10, and 12 years, and their parents independently completed a satisfaction questionnaire at the end of traditional therapy and again at the end of hippotherapy (Macauley & Gutierrez, 2004). The survey was a ranking scale where 1-3 were negative responses, 4-6 showed no improvement, and 7-10 showed positive experiences. Macauley and Gutierrez (2004) reported higher rankings following hippotherapy, with additional benefits of improved motivation and attention also reported. The procedure Macauley and Gutierrez (2004) developed involved questionnaires that the participants and their parents filled out at the conclusion of the fall academic semester of traditional clinic-based therapy and at the end of 6 weeks of hippotherapy. Therapy in both settings involved expressive language, receptive language, reading, and writing goals (Macauley & Gutierrez, 2004). Macauley and Gutierrez's hippotherapy materials were presented to the participants using picture, word, and letter cards, small dry erase boards, and lap desks with pencil and paper.

Macauley and Gutierrez (2004) set out to answer several question in this study. The first question concerned whether or not children with a language learning disorder (LLD) and their parents reported improvement in speech and language abilities following hippotherapy (Macauley & Gutierrez, 2004). The average rating of the five participant questions was 8.0,

which indicated that hippotherapy was effective in helping the participants improve their speech and language skills (Macauley & Gutierrez, 2004). From the participants' questionnaires, two of the responses fell in the seven to ten range indicating neutral responses, and three of the average scores fell in the seven to ten range indicating agreement (Macauley & Gutierrez, 2004). The parents scored even higher with an overall average of 9.2, indicating that parents strongly agreed that hippotherapy was effective in improving their child's speech and language abilities.

The second question concerned whether or not children and their parents reported improvement in the child's motivation to attend speech-language therapy following hippotherapy (Macauley & Gutierrez, 2004). Average response of the participants on the questionnaire was 9.5, indicating the participants agreed that they were motivated to attend therapy sessions (Macauley & Gutierrez, 2004). Average response of the parents on the questionnaire was 9.9, indicating that the parents strongly agreed that the participants were very motivated to attend the therapy sessions.

The third question concerned whether or not children and their parents reported improvement in the child's self-concept following hippotherapy (Macauley & Gutierrez, 2004). Average response of the participants was 8.5, indicating that the participants agreed that hippotherapy facilitated improvements in their self-concept (Macauley & Gutierrez, 2004). The parent's overall average was 8.5, indicating parents agreed that hippotherapy improved their child's self-concept (Macauley & Gutierrez, 2004).

Finally, the researchers investigated if hippotherapy was less effective, more effective, or as effective as traditional clinic-based therapy (Macauley & Gutierrez, 2004). Macauley & Gutierrez (2004) compared averages of scores using a paired *t* test to answer this question.

Findings indicated that, according to parents, hippotherapy was more effective than traditional therapy (Macauley & Gutierrez, 2004).

Summary of Major Findings

Current research regarding the use of AAT in therapy sessions indicates that frequency of visual behavior toward an animal was higher for some groups of participants. Further there is some evidence that individuals with autism comprehend animal communication better than human communication (Prothmann et al., 2005; Prothmann et al., 2009), and that children with autism may interact more with a dog than a human or object. This research may be a first step in the acknowledgment of AAT as a possible intervention tool.

Risley-Curtiss (2010) studied the effect of incorporating AAT into therapy sessions. The study found that survey respondents thought that clients opened up more in therapy when including animals in therapy. The study also revealed that clinicians are hesitant to start AAT because AAT training is currently unavailable. In addition, certification through Therapy Dogs, International, or Delta Society is lengthy and requires extensive handler and animal training.

Boyer (2006) studied AAT to see if there is a comparative benefit to improve language during social interactions between a child with an expressive and receptive language delay and a neurotypical peer. She studied AAT versus an inanimate preferred object and a stuffed toy animal. The author concluded that AAT did not yield significant differences when administered.

Macauley and Gutierrez (2004) study examined the effectiveness of hippotherapy versus traditional therapy for children with language-learning disabilities. In Macauley and Gutierrez's 2004 study, the clinicians had clients sit on the horse's back and physically accommodate to the three-dimensional movements of the horse's walk. Macauley and Gutierrez's (2004) found that hippotherapy improves motivation of the child to attend and participate actively in therapy

activities and that the child's speech and language abilities are not compromised. Each child in the study demonstrated improvements in his/her speech and language abilities and progressed toward therapy goals (Macauley & Gutierrez, 2004).

Despite these promising-yet limited findings, there is a need for further research into the efficacy of AAT across different populations, ages, and disorders. Future research is needed to investigate the generalization of behavior displayed in child-dog encounters to behavior displayed in child-child interactions. In addition, research is needed to further investigate if children with autism prefer animal interaction to human interaction. Currently, there is little research in the field of speech-language pathology using AAT. The remainder of this research paper provides information useful to implementing AAT.

Implementing Animal-Assisted Therapy, Animal-Assisted Activities, and Service Animals

Animals have traditionally served many useful functions to humans. Dogs are used as hunting partners, farm workers, livestock protectors, friends, and companions. Archeological evidence suggests that dogs have shared a common evolutionary niche with humans for over 140,000 years (Solomon, 2010).

In the healthcare setting the three most common uses of animals are: Animal-assisted activities (AAA), animal-assisted therapy (AAT) and service dogs. Over the last 30 years, the use of AAT and AAA both experienced a rise in popularity and are now being applied in many counseling and school settings across the United States (Chandler, 2001).

The Delta Society (1996), recently known as pet partners, defined animal-assisted activities as the casual meet-and-greet activities that involved pets visiting people. The same activity can be repeated with many people, unlike a therapy program, which is tailored to a particular person or medical condition (Delta Society, 1996). Animal-assisted therapy, as defined

by the Delta Society, is a goal-directed intervention directed and/or delivered by a health/human service professional with specialized expertise, and within the scope of the practice of his/her profession. AAT is designed to promote improvement in human physical, social, emotional, and/or cognitive functioning (1996). The major difference between AAA and AAT is AAT has set goals and AAA does not. Each individual has a treatment plan and AAA uses the same activity for many people. AAT visits are typically scheduled and AAA visits are spontaneous. Lastly, AAT encompasses notes to monitor patient progress and in AAA, note taking is seen as unnecessary.

A service dog is defined by US Department of Justice (DOJ) under the Americans with Disabilities Act (ADA) as an animal individually trained to perform tasks for people with disabilities. Such tasks include guiding people who are blind, alerting people who are deaf, pulling wheelchairs, alerting and protecting a person who is having a seizure, reminding people to take their medication, or performing special tasks. Service animals are working animals, not pets (ADA, 2010). The ADA in 2010 stated that businesses and organizations (i.e. hospitals and medical offices) that serve the public must allow people with disabilities to bring their service animals into all areas of facilities where customers are normally allowed to enter. This group is the only group of animals that is protected by law.

Special Considerations when employing AAT

Zoonosis

Zoonosis is a disease that can be transmitted from vertebrate animals to humans (Encarta World English Dictionary, 2010). Well-known types of zoonoses are rabies, Lyme disease, and ringworm. The most at-risk populations for contracting a type of zoonosis are elderly, pregnant women, young children, and individuals with autoimmune deficiency disorders (DiSalvo, 2005).

Elderly and autoimmune deficient individuals are more susceptible because they have a decreased ability to fight diseases. Other common zoonoses to which these populations are known to be susceptible include Salmonella and girardia lamblia (DiSalvo, 2005).

Children have a higher risk for zoonosis-related diseases because of a combination of highly susceptible immune systems and children's behavior (Grant & Olsen, 1999). Infants have the highest risk due to their underdeveloped immune systems. Children are likely to forget to wash their hands after contact with a dog and are likely to put their hands in their mouths. Ways to reduce zoonosis exposure include preventing infantile exposure to dogs and requiring older children to wash their hands after exposure.

Although zoonotic diseases are transmitted through many animals, healthcare facilities think of dogs more than any other animal regarding zoonosis- spread diseases Grant and Olsen, 2004). However, according to a survey performed by Grant and Olsen in 1999 dogs are viewed by both physicians and veterinarians as having the lowest risk of transmitting a disease to humans. One effective method is early detection and treatment of a zoonotic disease. Responsibility lies on the owner to receive annual veterinary blood screenings, bi-annual fecal exams, and recommended vaccinations. Next, documentation should be made ready for facilities that are interested in incorporating AAT. Finally, handlers should provide evidence of a disease-free dog upon request and in a timely manner. Facilities should require such documents be presented for review. Another effective method in the prevention of zoonosis is the implementation of an effective hand-washing program at facilities that use AAT.

Allergies

In addition, animals can be a source of allergen. Dander, an allergen, is the flaking of dry skin onto the dog's coat. Humans can inhale the allergen resulting in rashes, sneezing, itching,

and coughing. Approximately 10% of the population suffers from dander allergies (VanFleet, 2008).

The most common dog allergen, called Can f1, is found in dog saliva (VanFleet, 2008). Saliva allergies are caused from a protein inside the dog's saliva. After the dog licks his/her fur or an object, the saliva dries and becomes microscopic flakes. These flakes can break up and float into the air. Humans breathe the flakes and an allergy can occur. Approximately 10% of the population is allergic to dog saliva (VanFleet, 2008). One method to reduce the chances of allergic reactions is bathing and grooming the dog before arriving at the facility (VanFleet, 2008). Bathing and grooming reduces dander and saliva from the dog's skin and fur, which reduces allergic reactions (VanFleet, 2008).

No dog exists that does not allow for the potential of an allergic reaction. However, there are breeds that produce less dander than others do. These types of dogs are considered hypoallergenic because of their low shedding or non-shedding ability (VanFleet, 2008).

Bites

Although bites are a potential concern when working with animals, dogs that have been evaluated for a docile temperament pose little threat because handlers and dogs go through rigorous tests in obedience and temperament before being certified as therapy dogs. One concern, however, is the possibility of rabies after a bite. There again, handlers must show evidence of a current rabies vaccine prior to certification as a therapy dog. In addition, facilities should require that evidence of a vaccine be provided. Of particular concern is the potential for a high mortality rate from an infected animal bite among autoimmune deficient individuals (DiSalvo, 2005). Therefore, patients with autoimmune deficiencies should not be exposed to these animals. Bites, if treated quickly, pose little threat to other populations.

Cultural Concerns

In many areas in the world, it is common that people are fearful of dogs. Once a facility decides to incorporate AAT into their program, individuals (staff and clients) that are fearful should be identified, and when the dogs are at the facility, they should not be around these individuals. In addition, in some cultures, dogs are viewed as fierce creatures. People in Middle Eastern and East Asian cultures are particularly fearful of dogs because they are viewed as unclean or a general nuisance. Sensitivity to people from other cultures known to be apprehensive about dogs will show respect.

Two organizations that provide evaluation standards for potential therapy dogs Pet Partners, formerly Delta Society, and Therapy Dogs, International. Evaluations provided by either of these not-for-profit organizations include: docile temperament, obedience, and handler control over dog. Once certification is complete, the dog and handler begin working as a team to provide services for patients. Although not a requirement, a recommended course is the American Kennel Club's Canine Good Citizen program, which provides handlers and dogs with necessary obedience training and teaches owners to learn to detect their dogs' intentions.

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