

Human-Animal Interactions and the Development of Empathy and Social Skills in Childhood

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### **Abstract**

The following literature review discusses potential non-medical benefits that may result from child and adolescent interaction with animals, and the practitioner or educator preferences regarding animal species used in Applied Animal Therapy. Discussed below are a variety of research study findings regarding the potential relationships between human-animal interactions and the various social, cognitive, emotional, behavioral, and personality developmental aspects in children and adolescents. These studies looked at human-animal interactions in the school setting, in therapy settings using AAT, and in the family home settings regarding companion animals/pets. The animals involved in these studies include horses, dogs, cats, rabbits, fish, and other aquarium-dwelling species. Interaction with and preference for horses yielded the most significant benefits with child/adolescent development, followed closely by interaction with and preference for dogs. These studies address multiple factors including the owner attachment levels to the animals, child/adolescent preferences for specific species or no animals at all, and past/present history of household pet ownership. The research also addresses many aspects to child and adolescent development including, memory, focus/distractibility, self-confidence, self-esteem, social skills, attachment issues, depression, aggressiveness, and most notably empathy. The findings relay the positive impact that human-animal interactions can and do have on many aspects of child and adolescent development in many different circumstances. These studies showed that there is a positive relationship between child-animal interactions and child development, which is supported by researches, parents, and teachers.

## **Introduction**

What is the relationship between human-animal interactions and child and adolescent development? Before this paper, my knowledge of Applied Animal Therapy (AAP) was solely related to the potential for medical benefits. I was previously aware of the positive cardiovascular effects and illness recovery implications of interacting with animals, but I had yet to learn about any other non-medical relationships between child-animal interactions and the potential effects on the child's development. In searching for research to analyze this topic, I also looked to decipher what preferences educators and practitioners may have regarding specific animal species for use in Applied Animal Therapy. I collected a variety of research regarding the potential relationships between human-animal interactions and the various aspects to child and adolescent development. These studies utilized a variety of settings including the school setting, standard therapy settings, and private family home settings. Horses, dogs, cats, rabbits, fish, and other aquarium-dwelling species were all addressed in the following research, though some more than others. These studies address the children's level of attachment to the animals, their preferences for specific species, and their history of household pets. This research addressed many aspects to child and adolescent development including, memory, motor-skills, verbal development, distractibility, self-confidence, self-esteem, social skills, attachment issues, depression, and aggressiveness.

## **Previous Research Findings**

### **Animals in the School Setting**

Gee, Harris, and Johnson (2007) completed a study of a group of 14 preschool children four to six years old. Of these 14 children, nine were identified as having learning deficits, behavior deficits, or underdeveloped social skills; the remaining five children had no reports of these deficits. (Gee, Harris, & Johnson, 2007)The goal was to determine if their performances in a series of 10

motor tasks would be affected in any way by the presents of a therapy dog. (Gee, et al., 2007) The 10 tasks were paired up into five groups; “The five pairs of activities were curved tunnel and straight tunnel, high jump and long jump, roll-over and crawl, obstacle course and weaving, and balance beam and throwing” (Gee, et al., 2007, p. 379). The children’s performance speed and accuracy were evaluated and compared between the dog-present and dog-absent tasks. For the dog-present tasks, the dog would perform the task either directly before or at the same time as the child. “The presence of a therapy dog served as an effective motivator for the children, who performed faster, but without compromising accuracy, in all tasks but one” (Gee, et al., 2007, p. 375).

Prior to developing this study, the therapy dogs and students involved in the aforementioned study, had been given the opportunity to interact on a weekly basis in therapy work and play. This interaction helped the children develop a bond with the dogs, promoting improvement in the children’s speech patterns, as noted by both the parents and teachers. The teachers, therapists, and supervisors all relayed “positive impressions of the impact the dogs appeared to have on the children's social and motor skills following the games the children played with the dogs” (Gee, et al., 2007, p. 377). The aforementioned study was designed to move forward and gain a stronger understanding of these positive perceptions.

“Motor behavior a central component of many dog-child relationships and the presence of a therapy dog is beneficial during the execution of gross motor skills tasks by preschool children. Given the strong positive relationship between the development of gross motor skills and language (Rarick 1980), it is reasonable to conclude that therapy dogs may be a useful adjunct to language education and development” (Gee, et al., 2007, p. 384). Preschoolers exhibit a stronger connection between their motor performance and academic achievement than third graders do as explained by Chissom (1971). This describes a natural weakening of this connection with age, but does not deny the presence of the cognitive-motor connection in preschool aged children. (Gee, et al., 2007)

This next study was developed by one of the same authors as the previous study and has many similarities. Gee, Crist, and Carr (2010) completed two related experiments involving 12 children, ages three to five, which took place in the library of the children's preschool. They set out to examine the memory performance of young children when exposed to a live dog, a stuffed animal dog, and a young-adult man. The first experiment they began by showing each child 10 different three-dimensional target objects, then distracted them with a game, and finally re-showed each of those 10 target objects along with a new distracter object and asking them to recall which they had seen before. This was repeated three times, once with a live dog next to them, once with a stuffed animal dog placed next to them, and once with an adult man sitting next to them. When the live dog was present, the children required fewer prompts or instructions to complete the task.

The second experiment completed by Gee et al. (2010) was conducted a few months later and was aimed to confirm the findings of the first experiment. The only adjustment made to the previous experiment was the use of pictures of three-dimensional objects, instead of actual objects. Again, the children performed better, requiring less prompts when the live dog was present. (Gee, Crist, & Carr, 2010) "Woody-Ramsey and Miller (1988) argued that preschool children do not spontaneously restrict their attention to relevant stimuli, but that they are able to do so when the stimulus is highly salient"... "It is possible the presence of the dog provided that highly salient stimulus needed to help the children to restrict their attention to the demands of the task, which in turn required fewer instructional prompts" (Gee, et al., 2010, p. 183). In this and the previous study, more prompts were not necessary for the "identified" children, meaning that the presence of the dog may have increased comprehension and decreased distractibility.

Wedl and Kotrschal (2009) completed a study involving 50 children in the school setting, ages three to seven. They evaluated the relationship between the levels of interaction with classroom rabbits and the children's self-confidence and overall social interaction. The study team

determined three different types of interaction: direct occupation with rabbits; indirect occupation with rabbits; and proximity to rabbits. This study determined that a strong bond between a child and a companion animal, like the classroom rabbits, is dependent on the child's social competence and levels of empathy. More confident and respected children spent more time directly and indirectly, but less time in proximity with the rabbits, which is opposite of than the results for the more reserved or solitary children. (Wedl & Kotrschal, 2009) the children described as more clam and patient spent less time with the rabbit in all three categories. The sociable cheerful children spent more time in proximity but less in direct or indirect interaction with the rabbits. (Wedl & Kotrschal, 2009)

Children who have pets at home exhibited more integration in their class, and more overall social interaction and popularity. They spent less time with the rabbits than those kids without current pets. "Taking care of a pet may indeed enhance self-confidence, social acceptance, and communication with humans" (Wedl & Kotrschal, 2009, p. 394). Children who have siblings were more likely to spend more time with the rabbits directly, indirectly, and in proximity. The children's interactions with the rabbits were a reflection of their personal confidence levels and social abilities. (Wedl & Kotrschal, 2009)

### **Animals at Home**

A study completed by Daly and Morton (2006) examined elementary students in the home settings looking to evaluate their pet history specifically with, past and present ownership, preferences for specific species, attachment levels, and their attitudes towards their pets. This study also sought to evaluate how all of these factors effected the children's empathy development. The children in this study relayed the highest incidence of preferences for dogs, followed by cats, but there were a few who preferred horses, birds, and fish. For data gathering in this study, "*The Pet*

*Preference Inventory* (Daly and Morton 2003) asks participants to rate the types of pets they would like to have, given the options of cat, dog, horse, fish, bird, and reptile” (Daly & Morton, 2006, p. 118). The children’s empathy levels and development were measured using *Index of Empathy for Children and Adolescents* (Bryant, 1982), the *Lexington Attachment to Pets Scale* (LAPS) (Johnson, Garrity, & Stallones, 1992) was used to measure the levels of children’s attachment to their pets, and *The Pet Attitude Scale* (PAS) (Templer, Salter, Dickey, Baldwin, & Veleber, 1981) measured the children’s attitudes towards their pets, in varying degrees of positive or negative. (Daly & Morton, 2006)

Those who preferred both dogs and cats as pets exhibited more empathy than the group that preferred cats only and the group that preferred dogs only. Also, those who owned both cats and dogs were more empathetic than those who owned either a cat or a dog, or no pets at all. (Daly & Morton, 2006) Children who were more highly attached to their pets showed a more positive attitude towards them, subsequently those with a more positive attitude towards pets exhibited more empathy. (Daly & Morton, 2006) The most interesting finding was that those who preferred birds or horses had the highest empathy levels. (Daly & Morton, 2006) Children may develop important nurturing abilities through relationships with animals, although as suggested in his finding, Melson (2003) stated that more research is necessary to provide clearer perspectives into human-animal relationships. (Melson, 2003) This study found no differences in the empathy levels of those children who owned pets and those that did not, but it did find that those who owned dogs showed greater increases in empathy development than that of cat owners. (Daly & Morton, 2006)

A study completed by Poresky (1996) also addressed the interactions between animals and children, three to six years old, in the home environment. This study evaluated the children’s attachment to their pets, the quality of their family home life, and the effects these have on their levels of empathy for their pets and for other people. A total of 88 families responded to newspaper

advertisements to participation in this study. For this study, general demographic information, pet history, and family dynamic information was gathered via survey. Then the *Companion Animal Bonding Scale* (R. H. Poresky, Hendrix, Mosier, & Samuelson, 1987) (CABS) was utilized by parents for assessment of their children's attachment to their pets. More positive pet attitudes were reported in families that currently had a pet, and "there was a trend toward higher IQ scores on the PPVT" (Robert H. Poresky, 1996, p. 162). "Higher scores on the empathy measures were found for children with stronger companion animal bonds as rated by their mothers. There was a strong child-pet relationship effect ( $F(3/25) = 4.46, p = .01$ ) on the comprehensive empathy scale which included the cognitive, affective, and facial responses of the children to the child and dog items" (Robert H. Poresky, 1996, p. 162). This study provided strong support for the relevance of the CABS as a highly useful tool that can accurately evaluate relationships between animals and humans.

### **Animal Assisted Therapy**

Trotter, Chandler, Goodwin-Bond, and Casey (2008) utilized Animal Assisted Therapy (AAT) in treating a group of 126 third through eighth-grade kids. The study had a total of 136 participants which were split among two treatment plans, standard in-office therapy called Kid's Connection (Rainbow Days, Incorporated), or Equine Assisted Counseling (EAC). "These participants were identified by their school counselor as being at-risk for serious behavioral issues, learning difficulties, or social interaction concerns" (Trotter, Chandler, Goodwin-Bond, & Casey, 2008, p. 258). During this 12-week program, the participants in the EAC group spent one 2-hour session per week in group therapy on a ranch involving interactions with horses. The Behavioral Assessment System for Children (Sandoval & Echandia, 1994) (BASC) Self-rating scale (SRS), BASC Parent-rating scale (PRS), and therapist evaluations were used to monitor the participants' behavioral and cognitive changes. (Trotter, et al., 2008)

Learning how to work with such a large animal so that it will respond to your wishes and being able to control the situation is an accomplishment that is empowering for these adolescents. “Participants in the EAC treatment groups demonstrated a statistically significant decrease in negative behaviors and a statistically significant increase in positive behaviors on the BASC SRS and PRS as illustrated in Table 1” (Trotter, et al., 2008, p. 272). Most significantly, “the BASC-PRS offers even stronger validation than the SRS that EAC is a viable treatment for at-risk children and adolescents. When examining treatments independently, the EAC treatment showed significant improvement on 12 behavior scales of the BASC-PRS whereas the RD treatment showed significant improvement on one behavior scale on the same instrument” (Trotter, et al., 2008, p. 279). The relationships between the increases in empathy and self-esteem and the decreases in social stress for the EAC group were statistically significant. The RD group did not see the same level of benefits through this 12-week process, but they also had completely different therapy experiences. The RD group also only met for one hour a week, while the EAC group met for two hours per week. (Trotter, et al., 2008)

The next study completed by Kesner and Pritzker (2008) also looked at therapy involving horses but their sample population included 11 children ages 5 to 17, who had all been placed in Therapeutic Foster Care (TFC) due to a history of experiencing some sort of physical, emotional, or sexual abuse in their past. Each of the children who participated in the study had been dealing with severe emotional disturbances and their specific issues “may include poor self-esteem and self-concept, poor boundaries, lack of empathy, attachment issues, and difficulty feeling loved” (Kesner & Pritzker, 2008, p. 77). These issues cause mental health issues for these adolescents as well. They have difficulty developing emotional attachments and have a hard time respecting authority and rules, they experience depression, severe aggression, and explosive tantrums, and they often exhibit conduct disorder or substance use and abuse. (Kesner & Pritzker, 2008)

For data collection, “children completed both the *Tennessee Self-Concept Scale* (TSCS) and the *Piers-Harris 2 Children's Self-Concept*. TFC parents completed the *Conduct Disorder Scale* (CDS) prior to the riding session and afterwards” (Kesner & Pritzker, 2008, p. 80). The program included 10 sessions of horseback riding, lasting one hour, for each of the 11 children. As a result of participation in the program, both the participants and their parents noted great improvements in the children’s behaviors and emotional states. They have more confidence, stronger social desires, increased sense of responsibility and self-acceptance. (Kesner & Pritzker, 2008) “Participants specifically identified their relationship with their horse as an important factor contributing to the positive changes they were experiencing” (Kesner & Pritzker, 2008, p. 84). Some of the participants stated that they believed the acceptance and companionship they felt from their horse lead them to the success they experienced. “Dramatic changes were found in participant's behavior as recorded on the Conduct Disorder Scale. All 11 participants showed a decrease in negative conduct” (Kesner & Pritzker, 2008, p. 85).

### **Lasting Developmental Effects**

This next study completed by Ascione and Claudia (1996) aimed to determine the lasting power of a one-year, forty-hour humane education program that was implemented in school programming for first, second, fourth, and fifth grade students. Each of the grade levels was given pre and post tests to determine initial absorption of the material. Due to the results from these tests, the focus of the follow-up study was placed on the then-fourth graders who showed the greatest initial absorption of the presented material. These children showed greater attitudes towards animals in general, they “also showed a generalization effect from animal-related attitudes to human-directed empathy” (Ascione & Weber, 1996, p. 189). For the one-year follow-up, the researches

were able to retest 80% of the now-fifth graders involved in the original sample. (Ascione & Weber, 1996)

For the retesting, the students' "humane attitudes were assessed with the *Intermediate Attitude Scale* (IAS; Ascione, 1988). The IAS was designed specifically to assess attitudes toward both companion and noncompanion animals" (Ascione & Weber, 1996, p. 190). Then, the researchers wanted to determine if the animal-directed empathy acquired would or had transitions to human-directed empathy. "Human-directed empathy was measured by Bryant's (1982) *Empathy Index*. The Bryant Scale asks about children's feelings and behaviors toward other people who are upset" (Ascione & Weber, 1996, p. 190). Parents were asked to utilize the *Companion Animal Bonding Scale* (CABS) to evaluate their child's involvement in home pet care. Stronger CABS scores were associated with score on the IAS, showing more humane mentalities. "This is the first empirical study demonstrating that a humane education intervention can enhance children's attitudes toward animals, that intervention effects are maintained at least one year later, and that there is generalization from humane attitudes to human-directed empathy" (Ascione & Weber, 1996, p. 192).

This next study evaluated the effects of childhood experiences with pets and their effects on adults in their twenties, specifically relating to empathy development. (Daly & Morton, 2009) The sample group consisted of 387 adults ages 17 to 52, utilizing self-report instruments for data collection. They were asked to give their history of pet ownership including their attachment levels with their pets, what species of pets they had had, and whether or not they currently have any pets. The Animal Attitudes Scale (AAS) (Herzog Jr., Betchart, & Pittman, 1991), the Empathy Quotient (EQ) (Lawrence, Shaw, Baker, Baron-Cohen, & David, 2004), and the Interpersonal Reactivity Index (IRI) (Davis, 1980) were used for this data collection. Adults with at least one current cat or dog showed lower distress on the IRI distress than the adults who did not have dogs or cats. Adults

who had only dogs in childhood showed higher scores on the EQ-Social Skills rating than those who had cats, and higher than those who had neither. “Adults who had had pets (regardless of type) in childhood were reportedly more empathic in late adolescence and adulthood” (Daly & Morton, 2009, p. 379). The investigators of this study acknowledged that this topic needs more investigation before the results can be considered conclusive. (Daly & Morton, 2009)

### **Discussion**

Interestingly, the developmental aspect that seemed to be addressed most frequently was empathy. These studies relay the positive impact that human-animal interactions can and do have on many aspects of child and adolescent development, and in many different circumstances. The investigators in these studies all recognized that there is a need for further investigations in all areas of this topic. For the studies that looked at only cats and dogs, the results always supported the idea that human-dog interactions yield more empathy development than human-cat interactions. The studies that looked beyond just dogs and cats showed a more empathy development with preferences for or interactions with horses. I looked at one final study which collected the overall experiences and opinions of 75 elementary teachers regarding the effects of child-animal interaction. (Daly & Suggs, 2010) “The majority of teachers surveyed believed that the use of live pets in the classroom contributed positively to increased empathy, as well as socio-emotional development, in students” (Daly & Suggs, 2010, p. 101). As a whole, the teachers reported child-animal experiences with a total of 10 species, including guinea pigs, hamsters, rabbits, fish, frogs, geckos, turtles, crabs, and even one cat, one, dog, and one hedgehog. Overall, the teachers believed that the children’s interaction with animals lead to increased animal-directed empathy, which eventually lead to increased human-directed empathy. The teachers also believed that the children

not only increased their social skills through animal interaction, they also showed positive language developments. (Daly & Suggs, 2010)

### **Conclusions and Future Research**

“Companion animals are more common in households with minor children than in any other household type. More than 70% of U.S. households with children also have pets, with most parents reporting acquisition of an animal ‘for the children.’ Yet, studies of children’s development largely have been limited to children’s relationships with other humans” (Melson, 2003, p. 31). There is a positive relationship between child-animal interactions and child development, an idea that I have shown to be supported by researches, parents, and teachers. There definitely are relationships between human-animal interactions and human development on cognitive and behavior levels. At the very least, there is an effect on the development of empathy in children and adolescents when child-animal interactions come in to play.

“Taking care of a pet may indeed enhance self-confidence, social acceptance, and communication with humans” (Robert H. Poresky, 1996, p. 163). I do believe there are educational benefits that come from child-animal interaction, but I also believe, as many of the investigators above mentioned, that more research is needed to determine what exactly those benefits are, how to achieve them, and who they are most beneficial for. “Many people have said that it is the development of language that separates us from the animals, yet ironically the results of this study point us to the possibility that animals may help children to develop language” (Gee, et al., 2007, p. 384). As discussed in a few of the studies mentioned above, I believe child-animal interactions can assist with the development of language due to children’s motivations to learn how to build the connection and camaraderie they desire with various animals.

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