Effects of Animals in the Classroom on Children

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Abstract

A review of the literature, this paper examines the effects of animals in the classroom on children. Anecdotal evidence, case studies, and empirical studies support the findings on the topics of animals and child development, animals and stress, animals and hands-on learning, animals and humane and environmental education, and animals and the teacher's role. This is a relatively new area of research and most articles date from 1980 through the present. The history of human-animal interaction as well as the history of animals in the classroom are discussed. There is no evidence to refute the positive impact on children from animals in the classroom. These positive findings combined with the relative small amount of research that has been done point to a topic that needs more exploration.
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Chapter 1

Introduction

Recall your favorite childhood stories and the characters in those stories. Think of that special toy that you took to bed with you each and every night. Oftentimes the characters you encountered and your favorite toys were animals. From birth, children are exposed to animals in one form or another. Animals are still very present in a child’s life as he or she attend school. In his book, Children and Animals, Gene Myers describes the preschool classroom he observed.

This nursery school probably like many in North America is inhabited by protean animal presences. There are story book animals of several sorts. Others are animated by pretend-be they stuffed, plastic, or the transformed bodies of the children themselves. Curricular animals enhance preschool-level biology. And then there are living animals, outdoors and inside, constituting the locally available slice of the vast diversity of the animal kingdom. At times, the child’s world seems saturated by animal presences (Meyers, 1998, p. 1).

As Myers states, this scene is found in many if not most U.S. preschools as well as elementary school classrooms. Children are fascinated
with animals. Is there a way to incorporate this fascination into areas of the students’ learning? What are the problems with this idea? What are the roles animals can fulfill in the classroom?

Through a review of the literature, I plan to find the answers to the question: What are the effects of animals in the classroom on the children?

For the purposes of this paper, an animal is considered any non-human creature. This includes vertebrates and invertebrates; mammals as well as reptiles and birds, fish as well as shellfish and insects. By focusing on such a large variety of species, there will be greater diversity of topics for research, and a better chance of encompassing all my future students’ interests in animal interactions.

There are also many roles animals can play in the classroom, from being found in the literature to teaching about ecosystems to inspiring compassion in children. Not every animal fits in every role.

While this paper will discuss study animals, the limitation of this research is that it will not include animals used in dissection. As my research pertains to children in grades kindergarten through eighth, I do not believe that dissection is appropriate. Sapontzis agrees in his paper that dissection is unnecessary (1995). I am not interested in opening that can of worms, grasshoppers, frogs, fetal pigs, or cats that is dissection. I am keeping the research focus on living animals in the classroom.
In Marty Becker’s book, *The Healing Power of Pets*, Gail Melson is quoted as saying “infants are drawn to animals ‘like moths to a porch light’” (2002, p. 28), and goes on to say that “children’s interest in pets is the one strong element of childhood that survives as they mature” (2002, p. 32). In a constructivist-based classroom, the teacher needs to start at where the children’s interests are and what they know. This interest in animals is a good example of one place to start. Since I have an interest in animals myself, researching the ways to incorporate animals into my classroom is very important to me. Beginning with a shared curiosity, I can help students construct their knowledge surrounding animals. Through my enjoyment of animals and the readings I’ve done on the subject, I have become aware of the use of animals in a therapeutic setting as well. It is important for me to find out if any of these therapeutic benefits or effects cross over into a classroom setting. I hope to be able to meet the needs of my students in a variety of ways and want to discover the ways in which animals can help me do this. Many teachers have animals in their classrooms now. I hope that this review of the literature will help them utilize the animals in ways that are effective for the children. I hope that this study will also prove helpful to those teachers who are not currently using animals in the classroom. Perhaps the information presented here will convince them to give it a try.
There are many aspects of the classroom where animals can be utilized. Children who are read to from a very young age encounter animals in their stories most of the time. "From the time they are old enough to follow a story, the protagonists of children's books are, more often than not, animals" (Becker, 2002, p. 28). This is true for books in schools as well.

There is also a place for live animals in the classroom. One role live animals can play is as study animals. Creating ways for children to encounter animals in their habitats and doing natural things provides a growing and learning experience for children. In Margadan-van Arcken's paper, she discusses an earthworm study. When the children discussed earthworms with none present, the children's emotions ranged from uninterested to fearful. However, when the children were shown earthworms in their natural habitat making burrows and other wormy things, the children were interested and willing to touch and interact with the worms (1989). She feels that children need this type of exposure to not only learn about worms, but to become aware of the "interwoven relationship of people and nature" (Margadant-van Arcken, 1989, p. 14).

The use of animals has its detractors. Any time there are animals involved in a situation, there is the chance of bites and scratches and allergic reactions. Individual children’s fears should also be taken into consideration when introducing an animal into the class. Furthermore, there are many
illnesses and diseases that can be transferred from animals to people. "There are about 200 zoonoses with people generally serving as accidental hosts. Pets most likely to transmit zoonoses include birds, reptiles and rodents while the cat and dog are the most likely to inflict serious bites" (Ryan, 1998, p. 6).

When considering animals in the classroom, care must be taken in considering the animals as well. Children might not know how to handle or care for the animals. There are many ways an animal can be injured in a classroom. Birds can get respiratory infections from classrooms kept too cold, reptiles burned from having too much heat, and animals severely injured from being dropped or squeezed (Newman, 2002). Often times these illnesses lead to death. Death is another topic that is often times touchy with children. Teachers may not know how to handle the subject of death with the children.

The role of teachers is also a subject that detractors of animals in the classroom discuss. Some feel that the teacher needs to consider the reason for the pet, and whether it will be "connected to the curriculum... or merely used as a pleasant diversion" (Newman, 2002, para. 3). It is also up to the teacher to either care for the pet during weekends and breaks, or find a student to care for it. "Even though the pet is for the classroom, the teacher still has to think of it as a permanent responsibility. If it is not approached that way, you're teaching children a throw away mentality, which is exactly why so
many animals end up in shelters in the first place” (Newman, 2002, para. 10). The teacher not only has to tend to the care, but also the cost of the animal.

Many positive things surround having a classroom pet as well. “Surveys say that somewhere around 80 percent of families acquire some kind of pet during their children’s tender years, often when children are between the ages of five and twelve. Studies show that the parents believe pets will foster sensitivity, responsibility, and will provide companionship—and their instincts are correct” (Becker, 2002, p. 27). Children can learn things from classroom animals. It provides an opportunity for all kids to have a pet, and have a common experience. This is especially important to the relationship between children with disabilities and those without. “Owning and caring for an animal is an experience children with disabilities hold in common with many of their able-bodied peers, and pets become a topic of conversation during school hours” (Ruth, 1992, p. 17). Animals can build bridges and make connections that may not have formed on their own. This is just a small slice of how animals can help students in the classroom.

I hope to paint a clear picture of the pros and cons of incorporating animals in the classroom and the effects this has on the students. I will begin with the history of animal-human interactions and the history of animals in the classroom.
Chapter 2

History

In the times of early humans, the connection of humans and animals was related to food. According to Serpell (1986), humans were hunter/gatherers and depended on the animals to survive. Around 12,000 years ago, the domestic wolf made its first appearance. Horses, cattle, pigs and other animals typically thought of as farm animals came 3,000 years later (Serpell, 1986). “By about 2,000 BC all of our most important domestic animals were already permanent fixtures of human society” (Serpell, 1986). At that time, humans still depended on animals for food but were raising the animals and growing the plants that they needed for food. Out of this arrangement came the use of animals as more than just food but as companions and protectors as well. The modern day pet was born.

Throughout history there have been examples of uses for animals that fall outside of the conventional ways of thinking about animals (food and companionship). “In Ancient Egypt, dogs were sacred to the jackal or dog headed god, Anubis, whose roles included physician and apothecary to the gods, and guardian of the mysteries of mummification and reincarnation” (Serpell, 1996, p. 90). During this time it was thought that dogs’ tongues could cure ailments. This thought lasted through the Christian era with tales of St. Roch being cured of plague sores by being licked by his dog, as well as
other stories (Serpell, 1996; Coren, 2002). “Centuries later the close
companionship of a ‘Spaniel Gentle or Comforter’ - a sort of nondescript, hairy
lap-dog was still being recommended to the ladies of Elizabethan England as
a certain remedy for a variety of ills” (Serpell, 1996, p. 92). Horses were
another animal used for treatment. This “first appeared in writings in early
mythology”, where “Aesculapius is said to have prescribed riding for people
with wounds and diseases that would not heal” (Bieber, 1983, p. 449).

Animals have been used in ways other than healing as well. Many of
our nation’s presidents own and are photographed with their dogs to make
themselves more appealing and seem friendlier and more trustworthy
(Coren, 2002).

Documented cases of using animals for health benefits begin to appear
in 1792. At this time William Tuke, a Quaker, implemented farm animals and
other smaller animals into treatment for the patients at the York Retreat, an
asylum. (Serpell, 1986; Escordi, 2000) “Tuke believed that the animals created
a humanizing influence and argued that patients would ‘learn self control by
having dependent upon them creatures weaker than themselves’” (Serpell,
1986, p.92). The famous Florence Nightingale, in 1860, is quoted saying “a
small animal is often an excellent companion for the sick” (Beck in Escordi,
2000, p. 10) and often housed birds in rooms of her patients. At another
asylum, Bethel, in Bielfeld, West Germany, in 1867, “pets were part of the
treatment for epileptics” (Beck in Escordi, 2000, p. 10). This asylum is still in existence today and therapy there “includes two working farms, horse-riding, and large numbers of small companion animals” (Serpell, 1996, p. 93). In 1944-45 the first American documented use of therapy animals appears. The American Red Cross sponsored a program at the Army Air Force Convalescent Center in Pawling, New York for the rehabilitation of airmen. “The program used dogs, horses, and farm animals as a diversion from the intense therapeutic programs the airmen underwent” (Beck in Escordi, 2000, p. 10). Very few records have been kept about these programs.

In 1977, almost by accident, the first actual study about the effects animals have on human health was documented.

Erika Friedmann, a graduate student at the University of Maryland, began a study of the effects of social conditions and social isolation on the survival of a group of heart-attack sufferers. Friedmann interviewed each of her subjects while they were still recovering in hospital; first, with a standard psychological mood test (since depression is known to be associated with vulnerability to heart disease), and, second with an inventory of questions designed to explore every possible aspect of the patients social life at home. Buried in the latter were some items on pet ownership. Friedmann carefully followed up each of her subjects after they were
discharged from hospital, and she found that after one year 14 of the original group of 92 had died. She had all the data from her previous interviews and questionnaires on computer, so it was a relatively simple matter for her to ask the machine what significant differences there were between those who had survived the year and those who hadn’t. As anticipated, certain types of social contact (or lack of them) emerged as important predictors of survival but, contrary to expectation, the computer also told her that pet-owners had significantly better chances of surviving than non-owners (Serpell, 1996, p. 98).

Friedmann and her supervisors, Alan Katcher and James Lynch, searched the data for errors and found none. Next they searched for other correlations that would explain these findings, for example the fact that dogs required exercise. “They split the sample into dog-owners and other types of pet-owner and repeated the analysis, only to find that improved survival persisted in both groups” (Serpell, 1996, p. 98). They did other separations with the data, with no other explanation than “it seemed fair to assume that pets were, after all, having some positive influence on the survival of their owners” (Serpell, 1996, p. 99). They continued their studies and found correlations between blood pressure and animals (Serpell, 1996; Beck and
Katcher, 1996). These initial studies were the catalyst for a huge increase in the studies of the effects on human health from human-animal interaction.

In the field of mental health, in 1969 “Boris Levinson first coined the phrase ‘pet therapy’ to describe the use of pet animals in the treatment of psychiatric disorders” (Serpell, 1996, p. 89). Levinson was a child psychiatrist and discovered that patients that would be unresponsive to any human contact would strike up fast and easy relations with his dog, Jingles. By allowing this connection to form and then incorporating himself in the games, he was able to have major breakthroughs with his patients (Serpell, 1986; Beck and Katcher, 1996). “Levinson’s contribution was that he wrote seriously about pets and suggested plausible and testable theories to account for the benefits of animal companionship. By doing so, he brought the whole phenomenon to the attention of scientists and health care professionals for the first time” (Serpell, 1996, p. 93).

One of the first teams to study Levinson’s ideas was the husband and wife team of Elizabeth and Sam Corson, two psychiatrists at Ohio State University. Their study involved 50 “withdrawn and uncommunicative patients” (Serpell, 1996, p. 94) from the psychiatric ward where the Corsons worked. These patients were allowed to choose a dog from a nearby kennel and work with them each day. Only three people “failed to accept their chosen dogs and withdrew from the study” (Serpell, 1996, p. 94). “According
to their account, pet-facilitated therapy helped their patients to develop self-respect, independence and self-confidence and transformed them from 'irresponsible, dependent psychological invalids into self-respecting, responsible individuals’” (Serpell, 1996, p. 94). Many other studies followed including one in 1981 in Melbourne, Australia in Caulfield Hospital. The participants were elderly, "many were frail and suffered from various conditions typical of old people, such as arthritis, Parkinson's disease, senile dementia and cardiovascular ailments” (Serpell, 1996, p. 95). They were measured on their “happiness, mobility, alertness, and relationships with other patients and staff” (Serpell, 1996, p.95). A dog was introduced into the facility and lived with the patients for sixth months. "By the end of the study,...inmates were rated as happier, having more sense of humor, smiling and laughing more, being more alert and responsive, more easy going, more interested in others, enjoying life more, having a greater will to live, and having improved relationships with other patients and with staff”(Serpell, 1996, p. 95-96).

Boris Levinson also had ideas about the interaction of animals with children. He argued “that the experience of caring for a pet during childhood could make a person more sensitive to the feelings and attitudes of others; inculcate tolerance, self acceptance and self-control, and provide an early introduction to the facts of life and death” (Serpell, 1996, p.89). Levinson is
not the only one. There have been studies done to discover the ways in which animal interactions affect child development. Failed attempts to duplicate the 1920 study that paired a rat with a loud noise, by pairing a loud noise with inanimate objects, like a rag or wooden block, led people to realize that infants and children differentiate animals from inanimate objects (Myers, 1998). "These rather little-known infancy studies contain a big lesson: Children's concepts of nonhuman others may be based on and exhibited in interactions with them --- and this has implications for the self" (Myers, 1998, p. 67).

There are also other newer studies about child socialization and skills affected by animal interaction. In the 1980's, research by Arkow (1984), Hart and Hart (1984), and Beck and Katcher (1984) have documented "that pets foster sociability, animate the withdrawn, and enhance morale" (All, Loving and Crane, 1999, p. 53). In 1998, Triebenbacher "reported that children's attachment to a companion animal is positively related to their sense of self-esteem" (All, Loving, and Crane, 1999, p. 53). It has also been reported by Edney in 1995, that "children who have been raised in an environment that has animals have better non-verbal communication, are more popular, and have increased social competency" (All, Loving, and Crane, 1999, p. 53).

A large portion of the studies on the human-animal bond and its effects were done in the 1980's. Many of them cite Edward O. Wilson in their
hypotheses. Edward O. Wilson, a biologist and entomologist, published his hypothesis on the human bond with nature, his “Biophilia Hypothesis” (Wilson, 1984). Wilson defines biophilia as “the innate tendency to focus on life and lifelike processes” (Wilson, 1984, p. 1). He believes that “to explore and affiliate with life is a deep and complicated process in mental development...our existence depends on this propensity, our spirit is woven from it, hope rises on its currents” (Wilson, 1984, p. 1) and “to the degree that we come to understand other organisms, we will place a greater value on them, and on ourselves” (Wilson, 1984, p. 2). His ideas, such as “certain organisms have still more to offer because of their special impact on mental development” (Wilson, 1984, p. 85) and “we are in the fullest sense a biological species and will find little ultimate meaning apart from the remainder of life” (Wilson, 1984, p. 81) were very well received by the science community and started a trend in studying the human-animal bond, what some refer to as anthrozoology.

While throughout history the impact and benefits from being around animals has been realized, it has not been until recent years that formal study on the subject has been done. After Boris Levinson presented his information on the effects he found of animals and children in a therapeutic setting, he set out to discover the number of animals being used in classrooms. In the
1960’s, "[h]e surveyed the utilization of pets in ...schools and found that most did not permit pets in the schools" (Mallon, 1994, p. 227).

This finding is understandable considering that, when tracing the history of animals in the classroom, one finds it runs parallel with the history of research of human animal interactions outside of the classroom. In the ERIC database, the first articles written about animals in the classroom appear from the early 1950’s. These articles discuss the use of animals in agricultural terms and as research subjects. In the late 1960’s, there was an increased interest in the impact that humans had on the environment sparked by best selling books written by Ralph Nader and Rachel Carson. It was during this time period that articles appear that discuss the use of animals in a classroom setting to facilitate environmental education. Once animals were introduced into the classroom in a more social capacity rather than strictly research, many anecdotal articles were written by teachers about what they were doing with animals in their classrooms. These articles discuss types of pets, how to house them and different ways to include them in the curriculum. These types of articles were the only writings found on animals in the classroom up until the late 1980’s.

Up to that point, the writings and research all focused on how humans impacted animals and their environment and how humans could use animals for scientific and financial gain. With the surprise findings of Friedmann
there was a shift in perspective and studies began to research the positive
effects animals have on humans. Now there has been an explosion of
research done on the effects on humans of this interaction in various locations
such as hospitals, elderly homes, and schools because more researchers are
realizing the potential that is there. After Friedmann, Katcher, and Lynch’s
study of the relationship between blood pressure and animal presence,
researchers have done studies on other parts of the population, especially
children, and animals. The growth of the topic of human-animal interaction
has literally burst onto the scene; many studies have been done all at similar
times and it is hard to know which is the first. Since there is so much new
and excited interest, there are sure to be many more studies on the subject of
animal effects on children in the classroom.

The next chapter details the research that is already being done on the
subject of animals and children, and the effects the researchers are finding.
Chapter 3

Review of the Literature

Animals and Child Development

As teachers, one area of interest surrounding students is their development. Few studies have been done to determine the effects of animals on the development of children, but the ones done support that animals can be a factor in child development. One of the first steps in development is the development of a good sense of “I”, or who one is. Gene Myers (1998) wrote, after observing for a year a class of 26 four and five year olds, “children’s concepts of nonhuman others may be based on and exhibited in interactions with them—and this has implications for the self” (p. 67). The classroom contained a gerbil and two rock doves, and throughout the year had animal visitors such as a dog, a snake, a monkey, turtles and ferrets. Myers watched the children interact with the animals and also talked with the children about the animals. His research would not be completely reproducible because he did not use an exact set of questions within his discussions with the children. His findings might not be representational of all children since it was in a small college setting and the parents may be more affluent and educated. He did however have some very interesting observations. From his observations, he determined there are four major areas to consider within the interaction of animals and children. The first is
agency, or the animals' ability to act for themselves. The second area for consideration is coherence, or the recognition of children that animals have many distinct parts but all of them make up a whole. Affectivity is the third consideration. Affectivity is the child's ability to read an animal's face or more often their movements and body language to tell how an animal is feeling, for example, tired or excited. The fourth and final consideration according to Myers (1998) is continuity, or that the animals will continue to exist across time. He believes that children recognize these four components in nonhuman others as well as themselves and use this to gain a greater understanding of who they are. "Looking at children's interactions with animals, the features that stand out are the main constituents...necessary for the first coherent sense of the 'I'" (Myers, 1998, p.67).

Through his observations, Myers also noted an impact animals have on the social development of children. "The animal provides a vivid sense of connection across essential difference. This is not the same as accurate knowledge of the other although it may initiate and motivate the search for that" (Myers, 1998, p.84). There have been more studies done on the effects animals have on the social development of children. Some studies (Hyde, Kurdek and Larson, 1983; Covert et al., 1985) done on this involve the effects owning a pet has on the social development of children. Their findings showed a correlation between pet ownership and children's social sensitivity.
However, within the studies, it appeared that the child’s bond with and attachment to the animal was more important than just owning an animal. This started the next wave of studies in this area. Robert H. Poresky and Charles Hendrix (1989) hypothesized that there was a correlation between the actual bond between child and animal and the child’s social development. The researchers mailed out surveys to a group of 88 volunteer families drawn from the local day care center population. These surveys contained questions about the families’ home life, income, pet ownership, and child social development and were completed by both parents. The limitations of this study are that the sample population was those willing to mail in their responses and was participating in day care. However, the researchers were able to control for various factors that made the sample population more representational of a generalized sample. After statistical analysis that controlled for parent education, income level and other factors, the researchers found a marginally statistical significance of child-pet bond and the child’s development. “The benefits were primarily, but not exclusively, in the children’s social domain including their social competence, empathy, and pet attitudes. ‘Pet bonding’ appeared to be a stronger determinant of the pet associated benefits than ‘pet ownership’” (Poresky and Hendrix, 1989, p.10).

Studies are now being done to investigate the attachment to animals in a classroom environment to see if they have the same effects on child social
development. In a paper presented at the 5th International Conference on the Relationship between Humans and Animals, F.J. Bergesen reported that he “found that children’s self-esteem scores increased significantly over a nine month period of keeping pets in their school classroom” (Endenburg and Baarda, 1996, p. 168).

In another classroom-based study, Hergovich, Monshi, Semmler, and Ziegelmayer (2002) set out to determine if there were any impacts on social development from a dog in the classroom. There were four hypotheses; the first was that having a dog in the classroom would promote the field independence of the children from having to care about the needs of another being. Based on Herman Witkin’s theory of field dependence/independence, the researchers defined field independent individuals as those able to separate themselves from the whole of the environment and also see the other and empathize and socialize with it. The second hypothesis presented by the researchers was that the experimental group would have an increase in their “social intelligence” (Hergovich, Monshi, Semmler, Ziegelmayer, 2002, p.41). The researchers also projected that empathy for animals would increase in the experimental group and not in the control group. The final hypothesis was that “based on teacher assessments of sociability, social integration, and aggression in the children” the “social-emotional atmosphere” (Hegovich,
Monshi, Semmler, Ziegelmayer, 2002, p. 41) will be improved in the experimental group.

The study was carried out in two Viennese first-grade classrooms totaling 46 children, which is a small sample size. However, these classrooms were both varied in the nationalities of the students they contained, both had students from Austria, Africa, Turkey, and the former Yugoslavia. Other nationalities were represented in one class or the other. One classroom was used as the experimental group and was introduced to a dog in their room everyday. The other class was used as the control group and remained without a dog. In this study, both classes knew which group they were in and in some studies this can bias the results. Both classes were tested on their intelligence and were found to be not statistically different. Both classes were then given a pretest on their field dependence/independence, social intelligence, and self-assessment of empathy. The teachers were asked at the start of the study to rate their relationships with the students, to rate how well the children were integrated into the classroom, and if any of the children showed aggressive behavior. After three months, the classes were given the tests again and the teachers were asked the same questions. This study based some of their results on attitudes, which are an imprecise and difficult thing to measure. The researchers found a statistically significant difference between the field independence and the empathy between the
experimental and control groups. They also found a statistically significant
difference in the social integration between the two classes. However, the
study did not support an increase in the social intelligence in the
experimental group nor did it show a difference in the sociability of the two
classrooms. The hypothesis surrounding the aggression in the children could
not be considered statistically significant, though the “near significant data
suggest a tendency in the predicted direction” (Hergovich, Monshi, Semmler,

There have been other studies into a different aspect of social growth
in children. Often children with disabilities have service dogs to help them
with their everyday tasks. Studies (Mader, Hart and Bergin, 1989; Innes,
2000) have been done to show that the dogs are helping their masters in other
ways as well as the children their masters interact with. “In addition to
providing assistance, the presence of an animal seems to assist in eliminating
social barriers by enhancing how people are socially perceived (Lockwood,
1983) and by facilitating conversations (Messent, 1984)” (Mader, Hart, and
Bergin, 1989). Mader, Hart and Bergin did their study to determine if there
was support for these ideas. They chose their participants from a group of
disabled students who used service dogs and attended school in “regular”
classrooms. They, obviously, were unable to randomly select individuals to
participate for the study and also were plagued by a small sample size. A
positive aspect of the study is that they were able to perform their study in two separate locations with differing populations. To carry out their study the researchers observed and made note of all of the interactions between the students with their dogs in the school environment. They made note of how often they were smiled at, talked to, or were engaged in a discussion. They also noted whether the people approaching the students were talking to the dog, to the student, or to both of them. They then observed and noted the conversations and/or contact with the student without their service dog present. They then carried this experiment out with the children in a shopping mall, once with their dog and once without. All of their findings showed statistically significant differences between the amount of contact between the child/dog team and the public, and the child alone and the public, with the child/dog team receiving considerably more attention. The effect the animal has in this situation is twofold. "Increased exposure and interactions between disabled and nondisabled peers can affect positive attitudinal changes of able-bodied children (Rapier, Adelson, Carey, & Croke, 1972)" (Mader, Hart, and Bergin, 1989, p. 1533). Along with that, the special needs children have a way to connect to their able-bodied peers, and social contacts can be built.

This study is also supported in anecdotal evidence of teachers who see these bonds happening. In Moore Elementary School in Fort Collins,
Colorado, the special needs classroom is home to two dogs, Ashleigh and Brooksie. "On the playground, the dogs serve as a social bridge between special education students and regular education students. 'The time it takes for these students to develop friendships was reduced drastically just because of the natural inclination of children to become involved with the dogs,' explains Russ Fulton, principal of Moore" (Ruth, 1992, p. 17).

The animals working in the classrooms with the special needs students are doing more than fostering friendships. The grooming and feeding needs of the animals give students responsibilities that when finished give the students a great sense of accomplishment and enhanced self esteem (Endenburg and Baarda, 1996). Similar tasks of care and grooming, like brushing and buckling a collar give students an excellent way to practice hand-eye coordination. "Children that have difficulty with motor coordination learn to buckle the dog's collar which improves motor skills that are transferred to their personal capability in dressing themselves" (Delta Society Newsletter, 1991). Taking care of an animal and talking with an animal also comes with it's own language. "Students acquire and utilize related vocabulary, expressing what they have learned through sign, verbally, and in written form, as appropriate. As a result, pet care routines serve as a vehicle for both receptive and expressive language development" (Law and Scott, 1995, p. 17). "[The animals] work hard at giving their energy
through patience and tolerance so that the children may learn and grow mentally, emotionally, socially and physically” (Delta Society Newsletter, 1991).

**Animals and Stress**

Wanting one’s students to be ready and able to learn is always at the forefront of a teacher’s mind. School environments have not always been planned with the student’s need for learning in mind. With recent technological advances, according to Eric Jensen (1998), scientists have been able to study the human brain and actually know what students need to be at an optimal state to learn, and this has made it possible to create class environments that are conducive to child learning. Jensen (1998) found that in order for the brain of a child to be ready to learn, the child needs to get enough sleep at night, receive good nutrition and hydration at regular intervals throughout the day, be allowed to exercise and move regularly, be exposed to appropriate challenges that when completed will enhance self-esteem, and be exposed to music and the arts. However, the child also needs to avoid too much sugar, and “junk” foods, stay away from drugs, avoid too much exposure to television and video games, and have as little threat and stress as possible. Not all of these factors can be controlled by a teacher, such as sleep before school, what the child eats at home or if he/she watches
television, but teachers can help prepare the child for learning once he/she steps into her classroom. Allowing food and drink in the room, creating appropriate challenges and exposing her student to music and art are doable on a day to day basis. There also may be ways to reduce stress in a classroom as well, and this is the factor this paper will discuss.

"When we feel stressed, our adrenal glands release a peptide called cortisol. Our body responds with cortisol whether it faces physical, environmental, academic, or emotional danger....But in school, that kind of response leads to problems. Chronically high cortisol levels lead to the death of brain cells in the hippocampus, which is critical to explicit memory formation (Vincent 1990)" (Jensen, 1998, p.53). And that is just the beginning.

"Chronic stress also impairs a student’s ability to sort out what’s important and what’s not...thinking and memory are affected under stress; the brain’s short–term memory and ability to form long-term memories are inhibited...Chronic stress makes students more susceptible to illness...which means poor health and missed classes...a stressful physical environment is linked to student failure...Optometrist Ray Gottlieb says that school stress causes vision problems...and social situations can be a source of stress, too" (Jensen, 1998, p. 53-54).

It is apparent that stress is a big obstacle to student achievement.
Because of the groundbreaking study done by Friedmann, Katcher, and Lynch that discovered that the presence of animals lowered participants blood pressure and stress levels, more research was done to see if the effects reached beyond the elderly population. Katcher, Friedmann, and Lynch teamed up again this time with Beck (1983) to determine if the presence of an animal in the room would have an effect on children's blood pressure and stress levels. In one study, the researchers set up a fish aquarium. They had the experimental group first sit in a chair and watch an aquarium with fish while their blood pressure was being monitored for 20 minutes. The control group also sat in a chair while being monitored but only had a wall to see. After 20 minutes, the researchers had both groups read out loud. Both blood pressures taken for the experimental group while watching the fish and reading aloud in the room with the fish were lower than the initial blood pressure taken and the pressures of the control group. The blood pressures of the control group got continually higher as they sat looking at a wall and then climbed even higher talking with and reading to the experimenters. They then switched the control group and the experimental groups and took the same readings. The researchers found that the new experimental groups' blood pressures lowered to below their original in the presence of the fish tank and stayed low while reading to the researchers, but to their surprise, they found the new control groups' blood pressures stayed lower even while
looking at the wall and reading without the presence of the fish. They also carried out a similar study with children and dogs. The results were similar with the dog’s presence decreasing blood pressure and stress while reading. “The dog produced both a calming effect under mild stress and a deepening of relaxation when, supposedly, children should be at ease anyway” (Melson, 2001, p. 128). This study had significant findings and was well done because it was blind, random, and easy to reproduce. However, it would be interesting to study if there could have been a third group that had a friendly, inanimate stimulus, like a television program or a picture of happy people to compare blood pressure results to.

These studies provide scientific support to the positive effects that have been witnessed in animal-involved programs that are in place in schools. There are two programs in place, one in St. Louis, and one in Utah that involve students reading to dogs. In Francis Howell’s Fairmount Elementary School, the special education teacher brings her cocker spaniel in for the students to read to. The Intermountain Therapy Animals group in Salt Lake City, Utah, has developed a program called Reading Education Assistance Dogs, or READ. “[T]he program started from the idea that children who aren’t reading as well as their classmates often are embarrassed to read aloud in front of their peers, or even adults. Reading to an animal is less intimidating” (Anthony, 2002, para. 7). “After a four-month trial in a Salt
Lake City elementary school...standardized reading scores rose, with two of the 10 participants going up four reading levels and the rest going up at least two” (Barol, 2002, p. F14). This appears to strongly support the positive effects of animals on children where reading is concerned, however, it could be that the children were getting extra reading time and adult support. This anecdotal evidence suggests a path for future scientific research.

But the presence of an animal may not have the same effect on all children. “[F]ear or dislike of animals—or of the particular species used to induce relaxation—might have the opposite effect, increasing distress” (Melson, 2001, p. 129). In a two-year observation of preschool social behaviors and gender differences while engaged in science activities, Desouza and Czerniak (2002) found that “[g]irls displayed fear of arthropods, and both boys and girls showed fear of the unfamiliar. Girls tended to be afraid of insects and viewed them negatively” (p. 186). In most articles (Ross, 1989; Newman, 2002) written about incorporating animals into the classroom environment, there is mention of taking into consideration the fears and phobias in the class regarding animals. It is interesting to note that “fears of animals peak during the preschool years and then gradually decline” (Melson, 2001, p.135).
Animals and Hands-On Learning

We now have the children developing and growing in the classroom and their stress is reduced. They should be ready to learn. How and what can animals teach the students? There are two main schools of thought on how children should be taught in the classroom—the traditional approach and the constructivist approach. In the more traditional classroom, the lessons are teacher-centered and child input is at a minimum; they are taught parts of things unrelated to each other, and their work is very curriculum and book centered. The constructivist classroom, on the other hand, has child-centered lessons allowing the children to take the lesson where they need it to go to create their understanding; the lessons are taught whole to parts and interconnected, and the students learn not only from books, but also from hands-on manipulative materials and raw materials and primary sources. In the constructivist approach, “students...take responsibility for their own learning, ...[become] autonomous thinkers,...develop integrated understandings of concepts, and...pose--and seek to answer—important questions” (Brooks and Brooks, 1999, p.13). A hands-on approach is an excellent way for students to do this. Animals create a hands-on way to learn about animals, life, movement, and on and on... “Out of such active engagement with the ‘thingness’ of the world, children gradually distill abstract principles and relationships” (Melson, 2001, p. 79). Another aspect of
constructivist learning is starting with what the children know and drawing from what they are interested in. According to Chip Woods (1997), topics that children ages 5 through 9 are interested in relate to animals, either as pets, wild animals, or the environment.

There has been little research done on the use of animals as a hands-on tool. However, many teachers from all over the world write in journals, newspapers, newsletters, and essays about the way they use animals in their classrooms and how the children respond to this stimulus. When asked about the animals in his classroom, Tim Buchanan, a biology teacher at Belleville West High School says, “They add interest to the class. When you’re talking about the differences between coldblooded and warmblooded animals, you can walk right over and pick them up” (Williamson, 1997, para.3). Many teachers are also quick to explain that the animals are important to more than the science aspect of their classes. After touching and observing the animals, there are many questions and tasks that children pose that lead to integrated curriculum tasks. “Michael Hinkebein, a kindergarten teacher...uses his classroom pets to teach arithmetic and geography, too. His pupils weigh and measure the animals. And before a new creature arrives, the children learn about its natural habitat” (Williamson, 1997, para.4). This same teacher had the opportunity to teach about life cycles as well when one of the classroom animals had babies. He took this as a great opportunity to
teach the children about using the Internet for research to find out about how to care for the new baby chinchillas. Another teacher has her students keep a journal about the classroom pets. This is a great vehicle for writing. As the children make comments about what they are seeing or feeling with the animals, she has them write them in their journals (Glazer, 1995).

A fourth grade teacher, Jerry Nihill, created a “two-week, hands-on, integrated math, science and literature unit about dogs” (Owens, 1995, p.50). This unit incorporated having a live dog in the classroom for the hands-on activities for the two weeks. The children researched the roles canines play in society and wrote a report about specific breeds and their origins and uses. They also spent the two weeks reading children’s literature that included dog characters, like Sounder and Old Yeller. The children also charted his growth “in inches, pounds and kilos...weighed him, and they also measured him from the tip of his tail to his muzzle and from the floor to the top of his ‘withers’” (Owens, 1995, p. 50). At the end of the two-week period, any change in the children was noted by the teacher. Changes such as less absenteeism in his students, more enthusiasm, and greater responsibility (ranging from keeping the room clean so the dog wouldn’t eat something and get sick, to learning about looking out for others). The dog then created another aspect for the curriculum. Nihill taught his students about persuasive essays and had them write letters to the school board and their
parents about why the dog should be allowed to stay. The parents and school agreed that the dog was having a positive influence in all aspects of the class and they allowed him to stay for the remainder of the year. There is plenty more anecdotal evidence touting the use of animals as hands-on partners in the classroom.

Of course, there are also concerns surrounding the use of live animals in the classroom in a hands-on way. "There are risks. Animals may bite, produce allergic reactions and pass on infectious diseases" (Ross, 1989, p.5). Bites and scratches can inadvertently happen when a "small child struggles to hold it...trries to feed it" (Newman, 2002, para. 9). "A spike in the number of children who have allergies and asthma" (Draper, 2001, para. 2) is a concern when introducing an animal into the classroom. "Fur-bearing animals can inflame sinuses and constrict breathing passages" (Draper, 2001, para.3). Zoonoses are also a concern when children handle animals. Chicks and ducklings as well as many reptiles such as snakes and turtles can carry salmonella and transfer it to a child. Some types of birds such as pigeons and doves have the potential for carrying a fungal infection of the lungs. The simple act of cleaning cages also exposes children to urine and feces, which can also carry diseases.
Many of these risks can be managed through teacher role and responsibility which I will discuss in the Animal and Teacher Role section of this paper.

*Animals and Humane and Environmental Education*

There is evidence that the students are now excited about the animals in their classroom. What can the animals be? It is not a new concept that child cruelty towards animals often leads to cruelty towards humans later in life. In the 1200’s, Thomas Aquinas “cautioned that ‘Holy Scripture seems to forbid us to be cruel to brute animals...through being cruel to animals one becomes cruel to human beings” (Melson, 2001, p. 168). In the 1500’s, Michel de Montaigne “pointed out that ‘Natures that are bloodthirsty toward animals give proof of a natural propensity toward cruelty’” (Melson, 2001, p. 168). More recent examples include the “[v]iolent youngsters like Kip Kinkel and Luke Woodham” who have a history of killing and torturing animals before their attack on humankind and give the reason of animals torture as “for fun” (Melson, 2001, p. 172). It is documented, also, that children who are witness to domestic violence or victims of abuse themselves often abuse animals. This is thought to take place either because the child is so enraged, and “their anger is shunted from the feared abuser to ‘safer’ outlets at the bottom of the pecking order”, or because “[c]hildren from such families often
have distorted ideas about animals, assuming that cats don’t have feelings or that dogs need to be choked or hit to obey commands” (Melson, 2001, p. 175).

Using the classroom to teach humane attitudes towards animals is not a new idea. In 1884, George Angell, the founder of the Massachusetts Society for the Prevention of Cruelty to Animals, “distributed thousands of copies of his Ten Lessons on Kindness to Animals to schools throughout the United States. The goals of all these efforts were twofold: to counteract children’s apparently widespread cruelty toward animals and to use treatment of animals to extend a kindly orientation toward needy humans” (Melson, 2001, p. 170). More formal programs for teaching humane treatment of animals only began about 100 years ago. “G. Stanley Hall, in his classic 1904 text, Adolescence, expressed the rationale behind such programs in this way: ‘If pedagogy is ever to become adequate to the needs of the soul, the time will come when animals will play a far larger educational role than has yet been conceived, that they will be curriculized, will acquire a new and higher humanistic or cultural value in the future compared with their utility in the past’” (Melson, 2001, p. 179).

Studies have been done to find the need and effectiveness of humane education programs in the schools. Kellert and Westervelt (1983), Rheingold and Emery (1986), and Bryant (1985) all did research on humane education. However, Frank Ascione’s (1992) study is more in-depth because it lasted 40
hours over the length of a year and was conducted by the in-class teachers, whereas the others usually lasted 10 hours and were presented by visitors from outside the class.

Ascione’s study consisted of 32 classrooms of first, second, fourth, and fifth graders. Sixteen were the control group, and 16 were the experimental group. In the experimental group, the teachers were instructed to incorporate the National Association for Humane and Environmental Education’s curriculum into the year’s curriculum. The control group teachers, however, were told to not do anything different in their curriculum, including not bringing an animal into their classroom. The children in both groups were given a pretest to determine the children’s level of familiarity with animals, how many owned pets, had visited zoos and farms, and as a measure of attitudes toward the humane treatment of animals and empathy toward humans. At the end of the year, the groups were both retested to measure humane ideals and empathy towards humans. The first and second graders were given the Primary Attitude Scale and the Empathy index test to rate their levels of empathy. The fourth and fifth graders were given the Intermediate Attitude Scale and the Empathy Index test. The only difference between these tests is that the Primary Attitude Scale has more simplistic questions.
One of the findings from this study was that there was no significant difference in the pretest findings and the posttest findings of the first and second grade experimental and control groups’ measures of empathy toward humans or animals. There was however a statistically significant difference in the fourth grade experimental and control groups’ measures of empathy toward humans and animals. The fifth graders, like the first and second graders, also showed no significant difference. The findings also included that there was no significant difference in any grade on the measures of empathy between pet owners and non-pet owners. The researchers hypothesize that these findings could be because the first and second graders were too young to grasp the ideas. They believe that fourth graders are at the optimal age for this learning. The findings on the fifth graders could arise from the fact that the control groups’ teachers offered a high amount of humane education within their regular curriculum. A one year follow up of the study of only the fourth graders found that there was still a significant difference between the control group and experimental group’s measures of empathy toward humans and especially toward animals (Ascione, 1996).

In a Los Angeles middle school, the TLC (Teaching Love and Compassion) program is practicing teaching humane attitudes with shelter dogs and seeing the results of shaping attitudes of empathy for other humans as well. The program pairs volunteer students with a shelter dog to teach it
manners and obedience in the hopes of finding it a good home. At the same
time the students are learning respect for other creatures and "about patience,
respect and cooperation among their peers" (Pollyea, 1997, p. 30). At this age
group, "translating the skills of caring and compassion from pooches to
people wasn't an automatic process...[and] the sponsors decided to express
the goals of the program more explicitly in its content. In addition to teaching
the importance of being kind to animals, they would also incorporate lessons
and activities on conflict resolution, anger management and team-building"
(Pollyea, 1997, p. 30). Teachers and students are noticing the difference in the
students who participate. One recent graduate of the program "says he puts
what he learned in TLC into action whenever necessary. 'If I see people
fighting, I tell them to talk it out...One kid asked me how I learned to calm
people down, I said I'd been in TLC''' (Pollyea, 1997, p. 31).

Another branch of humane education is teaching children to respect
creatures for what they are and to treat them as they need to be treated rather
than like another human. This lesson is very important for the safety of the
children, especially when it comes to dogs. "Dog bites constitute a major
childhood public health problem in the United States. Recent reports
estimate that over half of the 4.5-4.7 million Americans bitten by dogs each
year are victims under 14 years of age (Sacks, Kresnow and Houston 1996;
Insurance Information Institute 1996; Weiss, Friedman and Coben 1998;
Lockwood and Sinclair, personal communication, 1999, Humane Society of the United States" (Spiegel, 2000, p. 164). Ian Brett Spiegel (2000) did research to determine if an educational program teaching children about dog bite safety could be effective in informing children of dog bite dangers as well as ways to avoid them.

The participants of the study consisted of 486 children from seven schools in second through fourth grades. The students were pretested on their knowledge of dogs and circumstances that often result in bites as well as what they should do when approached by dogs, when it is safe to pet dogs, reading dog body language, etc. They were then given a workbook and coloring book and an activity book. The children were all given a 55 to 60 minute presentation by visitors from the BARK (Be Aware, Responsible, and Kind) Program, that brought along large stuffed dogs. They were taught the safe times to pet and approach a dog, how to read dog body language, and what to do and not do when approached by a dog. The children were allowed to take the color and activity books home. Two weeks later, the students were post tested on the information. There was a statistically significant difference in the number of questions the children answered correctly on the posttest, especially in the fourth grade, leading the researchers to believe that 8 is an optimal age for teaching dog bite prevention.
Pearl Salotta’s program is anecdotal evidence of the benefits of teaching safety and care of pets and its impact on children. Her program involves a dog and high school students that go into elementary school classrooms to teach dog safety and care. The older children “do a great job leading the discussions. They really bond with the younger children and have no problem getting their points across and keeping the class on track” (Clement, 2001, para. 4) according to Salotta. The discussions range from feeding and care of the dog and other pets to safety and responsibility. “The younger students quickly caught on to the correlation between care and safety of pets and the care and safety of people” (Clement, 2001, para. 7).

Along with the care of species, attention needs to be drawn to the environment that these species and humans share and the care that the environment needs, as well. So far, there have not been many studies into specific programs that will foster environmental ideals or empathy, though the importance for children to have these and experience nature are documented. In *The Geography of Childhood: Why Children need Wild Spaces*, the authors detail the effect nature and the lack of, has had on them, their children and the children in their surrounding communities. They realize that more kids spend time watching television than spend time out of doors. While they are aware of the limitations of time and money for schools to create large opportunities for students to experience nature, Gary Paul
Nabhan recommends three things that may “stay[e] off the extinction of experience: intimate involvement with plants and animals; direct exposure to a variety of wild animals carrying out their routine behaviors in natural habitats; and teaching by community elders (indigenous or otherwise) about their knowledge of the local biota” (Nabhan and Trimble, 1994, p. 97). This can be as easy as having a wild bird feeder outside the window, or going to the playground and watching the birds. Many children forget that these animals they are exposed to every day are wild animals. Beck, Melson, da Costa, and Liu (2001) found a positive impact on children’s knowledge of birds and “related ‘bird facts’ such as best times to see birds, and male-female differences in appearance” (p. 26) from a ten week home based wild bird feeder trial. “Once children have seen the behavior of a variety of animals in their natural contexts, it is easier to engage them in balanced discussions of values, ethics, and spiritual responses of humans to the nonhuman world” (Nabhan and Trimble, 1994, p. 100).

Anecdotal evidence has supported the use of animals in the classroom to teach environmental and humane education since the 1960’s, however, not as many scientific studies have been done. The study discussed earlier in this section is a large random study that leaves one with questions. Such as, why did the researchers only study four grades, and then after finding only positive impact in fourth grade did they not study third? What is the optimal
age for humane and environmental education? As with all studies surrounding the use of animals, it is difficult to have a completely blind study as animals are easily seen. Another area that needs to be studied, is the effects on differing races and socio-economic groups. Much of the anecdotal evidence comes from urban, inner-city schools but the scientific research is done in predominately White suburban settings. The anecdotal evidence is very strong and points to an area that needs a lot more study.

While animals may help foster empathy in children for other animals and humans, a discussion of care and responsibility wouldn’t be complete without discussing the harm that could come to the classroom animals being used. Humane Societies and other animal care groups hear horror stories about animals used in classrooms. “[T]he Humane Society sees …at the end of every school year…an increase in the number of rabbits, hamsters, guinea pigs and other common classroom pets turned in to the shelter” (Newman, 2002, para. 5). And unfortunately many of these animals “have become neurotic, aggressive, sometimes insane, …depressed and simply given up on life…or blinded in one eye from poking fingers or pencils”(Newman, 2002, para. 6). “Some animals, if they just get out on a cold floor, can get sick and die” (Williamson, 1997, para. 6) Tim Stout of the North County Animal Clinic says. Along with the worry of harm to animals, Joelyn Rich, education specialist for the Humane Society of Missouri, also warns against teaching the
wrong lesson. “One of the subliminal messages is that it’s OK to take a living creature out of its natural habitat, confine it in a small space in a totally foreign environment and use it as a learning tool” (Newman, 2002, para. 12).

**Animals and Teacher Role**

How successful an animal in any role in the classroom turns out to be depends a lot on the teacher. The teacher is the main role model in the class, and the way he/she acts toward the animal will determine the message the students receive about the animal. Having an animal in the classroom is a commitment, as is having an animal at home. If a teacher simply gives a year-long animal to the shelter at the end of the school year, students get the idea that an animal is something you have at your convenience; and if it stops being convenient, you get rid of it. Cynthia Howl, director of education for the Animal Protective Association of Missouri says, “Even though the pet is for the classroom, the teacher still has to think of it as a permanent responsibility. If it’s not approached that way, you’re teaching children a throw-away mentality, which is exactly why so many animals end up in shelters in the first place” (Newman, 2002, para. 10). It is also important for the teacher to keep routine care routine and not let other things interrupt what needs to be done for the animal. This “demonstrates to children that responsible care of animals is flexible and not all that important” (Naherniak,
2002, para. 9). This also includes making sure that the animal has care during weekends, and breaks from the school.

The teacher also must be sure that the feelings and empathy for the creature in the classroom extends to all living creatures so as to not send children mixed messages. “If, for example, a teacher extols the importance of showing respect to the classroom animal and then turns around and stomps a spider, the children learn mixed messages about how other life forms ought to be treated” (Naherniak, 2002, para. 9).

The teacher can control many of the concerns regarding children and animals. The teacher must make rules about hand washing to avoid illness. “Teachers must be vigilant and work to combat the enormous social pressure to view animals as toys or as human-like babies in need of hugging or cuddling. Most animals, for example, do not like to be cradled on their backs” (Naherniak, 2002, para. 5). Teaching the children the proper way to handle and care for the animals will result in fewer scratches and bites. “Recognizing a hamster’s hamsterness or a rabbit’s rabbitness is the key to developing a respect for the animal’s own sense of purpose and inclination” (Naherniak, 2002, para. 6).

It is also important for a teacher to do their homework on a pet before bringing it in to the classroom. Are students allergic or have asthma or fears? It is important for the teacher to have alternatives for students to do if the
animal is key to an assignment and they are too afraid to touch it. “You don’t push animals on students....If students interact with animals, they will do so on their own, and then you know they are interested” (Bower, 1996, para. 8). Is the animal nocturnal and not appropriate for a daytime class? What does the animal need to survive and be happy and healthy? Does it need a lot of room or is it more comfortable in small areas? Does it live socially or prefer to be alone? How will the class and the teacher handle a death if it occurs in the class? These are all things that the teacher must know before bringing a pet into the classroom.

“If an animal is kept with the utmost care and respect in a classroom atmosphere, children’s curiosity and empathy can be confirmed and encouraged to flourish. The responsibility of the teacher as a humane role model cannot be understated” (Naherniak, 2002, para. 11).
Chapter 4

Conclusion

Boris Levinson was one of the first people to document an effect animals can have on children. He triggered the surge in research in the area referred to as the human-animal bond. When he searched for schools containing animals in 1968, and he found that most did not permit animals in the schools. During my research of the literature surrounding the question of the effects of animals in the classroom on students, I began to find articles containing information on animals in the classroom beginning around 1974. Since this time, teachers have written articles discussing what they have observed as the animals and children have interacted. Researchers also began to study these instances to try and determine if there was really something to them. The study of the human-animal bond is a growing field in all areas (homes, school, hospitals, nursing homes, etc.) with varying ages of people. In the case of research surrounding animal-child bonds and their effects, there is no research that contradicts the findings. While some numbers are statistically marginal (Ascione, 1996) the numbers are significant ($p=0.048$). There are also cases where the study sample sizes are small (Katcher, Friedmann, Beck, and Lynch, 1983, sample size 35). However, in the
Hegovich, Monshi, Semmler, and Zielmayer study, the sample sizes were also small (46 students) but the numbers were extremely statistically significant. All of the anecdotal and experimental evidence shows that there are positive effects on children from animals in a classroom environment. There is concern that bites, scratches, zoonoses, or allergies may come from the presence of an animal in the room. However, even those concerned, like the ASPCA, tout the benefits of having the animals present and recommend that teachers weigh the positives versus the negatives before introducing a pet into the room.

In the short history of the human-animal bond research, there are, of course, places where the research should go. Many of the studies have been done in suburban, mostly White settings. It would be interesting to see if there are different effects on children of different races. There is anecdotal support that living in urban communities separates children from animals and nature even more so than other living environments. There have not been any studies done on only urban or inner-city children and the effects animals would have on them.

In *Why the Wild Things Are*, Gail Melson describes a scene she witnessed in a veterinarian’s office. “The boy must be about ten, a Huck Finn wannabe in this university town smack in the heartland of the country....The boy is folded over something I can’t quite see, slowly stroking it with smooth
rhythmic circles. His voice is soft, a low murmur of endearments in a babyish singsong. I crane my neck to glimpse a small shivering mass of black and white fur plastered to the boy’s T-shirt. The father, too, is patting the dog and whispering to it” (Melson, 2001, p. 1). Kindlon and Thompson describe the ways in which society is “railroading boys into lives of isolation, shame, and anger” (2000, p. xiii). They ask, “do boys need special training to be empathic? We do not believe they need special training, but they do need opportunities to display their empathy....There are many ways to give boys the opportunity to learn to be empathic. Tending pets is one way” (Kindlon and Thompson, 2000, p. 252). However, there were no studies just on boys and animals. This seems like a very important area for the studies to move to.

After researching the effects of animals in the classroom on the children learning there, it appears that it would be “best practice” to incorporate animals into the classroom setting. The positive impact animals have on child development and increased excitement in the class are important for child learning which is what schools, teachers, parents, and school districts are concerned about. However, teachers must take care to not bring harm to the students or the animals. While having animals present and active in the classroom does seem like the best practice, a teacher who cannot commit to holding the animal as important and with the utmost respect should not have one in the class. The teacher’s role is enormous in the care of
the animal and in the message that he/she portrays to the students.
However, if the teacher is up for the challenge and task at hand in having an animal in her classroom, anecdotal and experimental evidence supports the benefits to his/her students of doing so.
References


Publishing.


Brooks, J.G. & Brooks, M.G. (1999). *In search of understanding: The case for*
constructivist classrooms. Alexandria, VA: ASCD.


Beacon Press.


Sapontzis, S.F. (1995). We should not allow dissection of animals. *Journal of*
Agricultural and Environmental Ethics, 8(2). pp.181-189.


