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The Effects of Animals on Children's Development of Perspective-Taking Abilities

by

Mika Maruyama

A dissertation submitted in partial fulfillment of the
requirements for the degree of

Doctor of Philosophy
in
Applied Psychology

Dissertation Committee:
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ABSTRACT

Although attention to the effects of child-animal interactions on children's development has increased in the last three decades, developmental psychology has not attended to the importance of the effects of animals on children's development. There is a need to consider the possible impacts of animals as significant social partners for children's socioemotional development. The current study, through survey questionnaires and interview methods, investigated whether interacting with animals, especially when children have responsibilities for the welfare of pets and perhaps have formed strong attachments with pets, will promote children's socio-emotional development, specifically their abilities to take the perspective of others.

Sixty-five students who attended the local humane society's summer camp program, and students who participated in a monthly humane education program as part of their after school program were invited to participate in the study. All participants completed seven surveys and one telephone or face-to-face interview that were designed to measure their attitudes toward animals and humans, as well as their abilities to take the perspective of others. A linear regression analysis, Chi-Square test (χ^2), and correlation coefficient test were conducted to assess the quality of interaction with pets on children's humane attitudes toward animals and humans, empathy, as well as their perspective taking abilities. It was found that students who showed stronger attachment toward their pets showed more humane attitudes toward animals and toward humans than students who showed weaker attachment toward their pets.

Additionally, it was found that students who showed stronger attachment with their pets had higher levels of social cognitive development (i.e., perspective taking abilities) than students who showed weaker attachment with their pets. Also, significant correlations among variables, such as students' knowledge of animal care, attitudes toward animals and humans, attachment with pets, perspective taking abilities, were found. Lastly, students whose parents show more effective guidance on pet care have more advanced skills of thinking and solving problems in flexible manner than students who do not receive any or less guidance on pet care at home.

Findings from the current study suggest the importance of humane education programs as well as effective parental guidance in pet care at home to promote students' knowledge of animal care and humane attitudes toward animals, which influence students' ability to take perspective of others. Promoting such knowledge and attitudes of children may help to promote their empathy and ability to take perspective of others. Having such abilities will alternately help children to have high interpersonal skills, which is a key to have a more successful life in society.

Acknowledgements

When I think back to the past decade of working in the area of human-animal interaction, I cannot start writing without mentioning how much Dr. Frank Ascione affected me as a student, a researcher, and as a human-being. Dr. Ascione is an American Humane Endowed Chair and an Executive Director of Institute for Human-Animal Connection at University of Denver, and one of the most respected scholars in the field of Human-Animal Interactions. His studies have changed tremendous numbers of animals and people's lives positively, and so many lives have been saved. He cares about all livings equally regardless of their age, gender, status, or even if one walks on two legs or four legs. He has taught me how valuable this field of the study is, how science can affect all living creatures and the society positively, and how hopeful our future is. Dr. Ascione, you are the reason why I am working in a wonderful field that has enriched my life.

For the current study, I would like to thank all students and teachers who kindly shared their precious time for this study. I also thank Drs. Miller-Jones, Martorell, Kaufman, Caskey, and LeJeune for their continuous support throughout the research study. I would like to thank Ms. Shiveley, Oregon Humane Society, Ms. Richards, and Ms. Wolf from the "I Have a Dream" foundation for their generous support to make my study possible. Ms. Dalton from the Project Pooch is also sincerely appreciated for giving me an opportunity to visit her program. Her program has inspired me to see the bright future in this field of the study. Lastly, I would like

to thank my family, who have supported me unconditionally and showed me how life can be wonderful and full of love.

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CHAPTER I: INTRODUCTION

Over the course of the past ten years, when I am faced with difficulties continuing my research on child-animal relationships, I think of my father and my best childhood companion, my dog, Pucchi. Pucchi was brought to my home as a puppy by my father when I was a young child. Because I had never had an opportunity to interact with animals nor even touch animals in my life, I did not know how I could care for or interact with this new family member. Yet, my father constantly reminded me of how I would feel if I were in Pucchi's shoes, and he often asked me how and what Pucchi would be thinking and feeling. Even over two decades later, I still remember my father's face when he first introduced me to Pucchi. I remember that watching his face gave me warm and secure feelings that made me smile. In my dreams, Pucchi could talk to me in a language that I could understand. Pucchi was not just a dog for me, he was my best friend and I often thought he was the only one in the world who could understand me. My father and Pucchi provided me with more unconditional love and emotional support than one could ask for in this life and I'm sure contributed to the person I am today. Now, both of them are my most precious memories and remain helpful to me when I need them even to this day.

This study investigates some possible consequences for children when they interact with and form emotional attachments to animals. Our relationships with animals can be powerful influences on how we develop emotionally and socially. Most children grow up with pets or interacting with animals. It is reported that 70% of

all U.S. households with children younger than age 6 and 78% of all households with children older than age 6, had some kind of pet (American Veterinary Medical Association, 2007). American children most often choose dogs and cats as their most important pets even when they had other types of companion animals (Poresky, 1997). There is often a special bonding and reported strong emotional connections between children and animals, and many children believe that animals have feelings just like they do. Past researchers (e.g., Ascione, 1992, 1993, 1997; Cameron, 1983, Fitzgerald, 1981) found children that spend time with animals are more likely to show empathic attitudes toward humans.

However, when I recently visited a local youth correctional facility, I began to question the supposition that all pet owners are more likely to show more empathic attitudes toward animals and humans. I had an opportunity to communicate informally with juvenile offenders at this correctional facility. While I was communicating with these youths, I found that most of them had had at least one pet (mostly dogs) when they were growing up. Yet, they engaged in criminal activities (some committed felonious violent crimes), indicating that they did not consider the consequences of their actions, such as what the victims and/or victims' family would experience as a result of what the offended did.

Pet ownership in the U.S. is one of the highest demographic categories among developed countries (American Veterinary Medical Association, 2007). At the same time, crime rates in the US seem extremely higher than other developed countries (Maruyama & Ascione, 2008). These facts led me to the following questions: Why do

some children become more empathetic toward animals and humans? What, if anything, does growing up with companion animals (i.e., pets) contribute to children's ability to consider the perspective of others?

The purpose of the current study is to investigate how children develop empathy and perspective taking abilities and how animals may play a role in children's socio-emotional development. I am also interested in how adults can guide and promote children's "effective interactions" with animals. I will focus on the role of companion animals in the lives of children in the ecological context of their homes and I will attempt to identify the qualities of children's experiences with pets that are associated with increased empathy and perspective-taking. Overall, I am interested in whether promoting certain kinds of interactions between children and animals will help them to develop their empathy and perspective taking abilities, which may consequently help prevent their engagement in antisocial behaviors or interpersonal violence in the future.

I will first review the past research on the effects of interactions with animals on: children's emotional development; children's attachment to their pets; children's empathy; and effectiveness of humane education. I will then review developmental theories, such as Piaget's Cognitive Developmental Theory in order to develop research questions and hypotheses of the current study. Lastly, I will discuss how I conducted and analyzed the data of the current study.

CHAPTER II: LITERATURE REVIEW

Attachment to Animals

Attachment theory provides a useful framework for understanding children's socio-emotional development as well as their relationship with pets and others in their social network. Before I discuss the importance of attachment to their pets, I will discuss the effects of physical contact with animals on children.

As infants grow, ideally caregivers provide them with the warmth and responsiveness that infants associate with love and security. One of the classic studies of attachment was conducted by Harlow and Zimmerman (1959). Harlow and Zimmerman (1959) investigated how baby monkeys form attachments with different types of surrogate "mother" figures. The researchers reared baby monkeys in cages with two "mother" figures, one made of bare wires and equipped with a bottle of food, the other made of wire covered with soft cloth, which was not equipped with a food source. Harlow and his associates found that "contact comfort" was more important than food rewards for monkey's to form attachments, i.e., monkeys spent significantly more time with the cloth "mother," especially when they were in distress. Follow-up studies showed that those monkeys that had never been touched by another monkey developed severe emotional and social pathology, and an aversion to touching and being touched later in life (Lichtenstein & Sackett, 1971). This study indicates that tactile stimulation is very important for monkeys to grow up emotionally healthy.

Prescott (1976) asserted that humans who have been deprived of tactile stimulation in early childhood may develop similar symptoms. Although we have to

be careful about generalizing research results from comparative studies with animals, the behavior of primates has frequently been found to parallel human behavior (Levinson, 1984). Hence, these studies imply that physical contact (e.g., touching), especially contact with soft items, makes humans act like and report feeling comfortable and secure. Levinson (1984) argued that this kind of contact releases endorphins in the nervous system, which can alleviate anxiety and help to form the foundation of the social attachment. It is suggested that physical contact with a caregiver, primarily the mother, which includes her soft and comforting presence, contributes significantly to the formation of attachment (Bowlby, 1969). These experiences are particularly important during early developmental periods for both human and animals.

Attachment theory suggests that children form an internal working model of every attachment relationship (Bretherton, 1985). Their internal model consists of the ideas and feelings about a relationship, which the child stores as mental representations. These cognitive constructs are viewed as developmentally significant because they make the attachment relationship cognitively available to the child even when the attachment object is physically absent. In addition, some attachment relationships are generalized, making them applicable to other, similar relationships (Melson, 1991). For instance, the internal working model of the mother-child relationship is thought to be carried into adulthood; when a child grows up and becomes a parent, the internal working model provides the initial ideas for this next-generation mother-child relationship (Melson). It is important to note that even if

children cannot form attachment securely with their caregiver, they may be able to experience compensatory attachment with a pet.

Bowlby (1969) stated that both animal and human companionship, which is a psychologically based set of behaviors, are initiated by attachment behaviors, which are a biologically based set of actions. As discussed above, touching a soft object (e.g., a security blanket) can arouse pleasant feelings. Young children are often attached to a "security blanket" and this attachment often promotes children's adaptive behaviors by enabling them to draw on their inner resources even when their primary attachment figures (i.e., caregivers) are separated from them (Levinson, 1984). According to Levinson, "by extension from the transitional object (e.g., blanket), secure, euphoric feelings can be transferred to a real animal, familiar, soft, and furry, such as a dog" (p. 134).

Bowlby (1969), a psychiatrist known for his pioneering work in attachment theory, defined attachment as a strong affective tie that binds a person to an intimate companion. Although Bowlby's definition of attachment implies that attachment exists only between humans, a study by Melson and Fogel (1989) found that young children displayed attachment behaviors toward animals, especially their companion or "pet" animals. Furthermore, Kidd and Kidd (1985, 1987) reported that the ability to form attachments to pets begins as early as 18 months of age. Pet experiences in the childhood were reported to be a predictor of pet ownerships in the adulthood (Serpell, 1981). The self-concepts of adults were related to the age when they had their first pet

(Poresky, Hendrix, Mosier, & Samuelson, 1987). It is possible then, that having positive pet experiences in one's childhood that affect one's later development.

Yet, it is important to distinguish between "pet ownership" and "animal bonding." Poresky, Hendrix, Mosier, and Samuelson (1988) referred to "bonding" as the development of a relationship. This is analogous to Ainsworth's (1973) concept of attachment as "an affectional tie that one person forms to another specific person, binding them together in space and enduring over time" (p. 1). Although Poresky and colleagues (1988) addressed that this concept of "pet bonding," which refers to the establishment of a relationships which parallels, may not be as strong as, Ainsworth's concept of interpersonal attachment. This affectional relationship with a pet is assumed to be of greater importance than actual pet ownership per se. Poresky (1997) further stated that the human-animal bond is viewed as an emotional attachment which endures over space and time and which has the power to affect human development.

Bustad (1996) pointed out that our changes of lifestyle necessitate animal companionship. Melson (1988) discussed that in the case of working mothers, their children (second and fifth graders) were more likely to be home alone. Subsequently, a pet may function as a substitute transitional "attachment object" for the child. It is also possible that working mothers' children may be less likely to be involved in other outside the home relationships with friends, youth groups, or extra-curricular activities. In such cases, having a pet that the child might bond with may become relatively more important for their outside-school relationships. In fact, Melson found

that children's play and care for siblings decreased with age as the care for pets increased.

Many fathers and mothers work outside the home, usually at different locations and sometimes on different schedules and are thus less available to their children. Children spend most of the time at school or daycare centers, and even at home children often spend a great deal of time watching TV or working on the internet. Bustad (1996) suggested that these changes have led to serious challenges to the overall health and well-being of a significant segment of our population. This deprivation of nurturing opportunities has resulted in increased stress, depression, and loneliness. Companion animals can potentially mitigate these situations by serving as nurturers for many people, promoting touching, playing, and sharing with few time restraints.

Psychological Processes through the Interaction with Animals

As I discussed in the section, *Attachment to Animals*, interacting with animals could affect children's development. Especially, guiding children to be mindful of animals' needs and to treat animals with sympathy has been shown to affect children's future behavior toward other humans (Ascione, 1992).

When we communicate or interact with animals, we often make assumptions based on animals' behaviors in order to interpret their responses. Such experiences could significantly contribute to the development of children's "theories of mind" (Baron-Cohen, 1991). Theories of Mind is an extension of Piaget's perspective-taking studies and refers to the ability to understand the thoughts, actions,, and intentions of

others especially when these differ from one's own. It is argued that an important development for children is the ability to predict or explain others actions and to make attributions to another's intentions. An animal's inability to speak forces children to evaluate what animals are experiencing (e.g., thinking, feeling) and what their needs are through interpreting their behaviors and projecting how they themselves might feel. By interacting with and caring for animals, children learn to interpret non-verbal signals based on observed behaviors and the context. This empathic orientation is expected to be generalizable in humans (Ascione, 1992, 1997; Maruyama, 2005). Therefore, introducing animals to children is expected to not only increase their understanding of non-verbal behaviors, it is also expected to increase their future empathy (perspective-taking abilities) toward humans.

Furthermore, past empirical research found that having pets affect one's self-concepts in their later life. Poresky and associates found (1988) that self-concepts (i.e., perception of self) of adults were related to the age when they had their first pet). Children who had their most important pet when they were younger than 6 or older than 10 years old had higher self-concept scores, as measured by the Tennessee Self-concept Scale (Fitts, 1965), than if they had their most important pet when they were between 6 and 10 years old. Findings from Poresky and associates suggest that bonding with pet at early in one's childhood is more important than later relationships with pets. Additionally, Poresky (1996) found that children's (3 to 6 years old) empathy scores on the Young Children's Empathy Measure (Poresky, 1990) were

correlated with both their age and their companion animal bonding relationship on the Companion Animal Bonding Scale (Poresky, Hendrix, Mosier, & Samuelson, 1987).

These findings suggested that as children grow older a pet may provide an increasingly important avenue for developing behaviors and ideas related to nurturing others. Developing effective interpersonal relationships is essential for one's well-being. Promoting the ability to understand and take the perspective of others is helpful in that it increases our harmony with others and our ability to resolve conflicts with others in an effective manner. Furthermore, having the ability to see different perspectives should allow us to see possible consequences of our choices and actions before taking action. Such skills could give us the ability to make conscious and more appropriate decisions both for ourselves and for others.

The daily experience of non-verbal communication with animals may help children become more likely to consider the feelings of "others" and to take into account another person's point of view without them necessarily explicitly stating them. Guiding children to be kind to animals is one effective way of raising our children to be healthy adults. Providing opportunities for children to interact with animals may be one way to achieve that goal.

Children and Empathy

A central construct for the proposed research is that of empathy. Eisenberg (1992) defined empathy as "an emotional reaction to another's emotional state or condition that is consistent with the other's state or condition" (p. 44). Ascione (2005) stated that "empathy is believed to be a critical component of prosocial behavior, a

term that connotes kindness, helping, cooperation, nurturance, and unselfishness in our relations with others. In essence, it means caring about and caring for others" (p. 64). Ascione further claims that these qualities of empathy are more likely to develop if children experience being cared about and cared for by others.

Ascione (2005) discussed empathy toward humans and toward animals using a hypothetical story example. In the story, a child finds a puppy yelping because his leg was caught at the bottom of a chain link fence. To understand the child's thinking process, we have to ask the child about his/ her thoughts and emotions. In this case, the child needs to identify visually that a puppy is trapped by the fence, and through a puppy's yelping, the child is supposed to know a puppy is going through distress or fear. The child has to compare the puppy's situation based on what he/she might have experienced in his/ her past, such as his/ her experiencing of a toe caught in a door jam and experiencing pain. It is important that the child has already developed the cognitive ability to compare the puppy's circumstance to one with which he or she is familiar. Ascione emphasized that the child must use and integrate his or her perceptual abilities and intellectual capabilities to come to this understanding. Furthermore, the child needs to understand the puppy's helplessness and be able to make a judgment whether he/ she wants help, and if so, how.

It is expected that the combination of a child's cognitive capacity for perspective-taking and his/ her emotional empathy will promote the child's understanding, sympathy for the puppy, and decision to take action to help. Eisenberg defined sympathy as "feelings of concern or sorrow for another in reaction to the

other's emotional state or condition" (p. 44). Eisenberg (1988) suggested that there is no reason that humans' sympathy with animals should differ greatly in quality or functional outcomes from their sympathy for humans.

When we discuss the development of empathy, we have to consider factors that shape children's empathy. Eisenberg (1988) discussed influences of humans' biology, genetics, neurophysiology, and culture on humans' response to the distress of others including animals. Furthermore, Eisenberg addressed several factors that may be required of children to be empathic toward others. For instance, children's intellectual competencies are important. For instance, children should treat a pet dog that is stuck in a hole differently than, for example, a snake that is in the same situation. Children's knowledge and understanding of animals' needs and appropriate handling, as well as their experiences with animals, seemed to be associated with children's empathic behaviors. Children need to have reached a certain level of socioemotional and sociocognitive development.

According to Eisenberg (1988), children who develop effective and positive relationships with others should have the capability to acquire the following abilities: 1) *understanding* the perspective and emotional experience of others; 2) *learning* how to interact socially with others; 3) *understanding* a variety of strategies for solving conflicts with others in effective ways; and 4) *making moral choices* that are respectful of the needs and rights of others.

Understanding the perspective and emotional experiences of others requires a capacity to think about what the other might be feeling or thinking and to step outside

one's own point of view (i.e., de-centering). Children need to understand the perspective and emotional experiences of others. Piaget (1969) argues that through experiencing conflicts with ones' peers helps to equilibrate one's cognitive structures or understandings. Certainly living with and caring about a pet that can't express their feelings and needs explicitly, can induce such conflicts and, in turn, lead to the children's realization of what the animals might be experiencing.

Consequently, it is important for children to understand how to interact socially with others. Vygotsky's formulation of the Zone of Proximal Development suggested that it is through the guided participation with a more knowledgeable other, in this case perhaps a parent, leads the child to become aware of and to understand the other's feelings and thoughts. It is the critical role of the parent or teacher to help the child understand the situation and to consider a variety of strategies.

Additionally, Eisenberg (1988) suggested that the two components are critical for children's socioemotional development: 1) development of the *understanding* that others might think or feel differently than oneself; and 2) developing ways to *resolve conflicts* that reflect a caring concern for how others might feel. For Piaget what is required to develop conflict resolution, is the ability to consider more than one point of view and to coordinate what each party would need to satisfy them.

Lastly, social influences on children may also play a role in influencing the development of children's empathy. According to Bandura's self-efficacy theory and social learning theory (1994), children learn socially desirable behaviors through the positive reinforcement of empathic behaviors by family members or friends (Owens &

Ascione, 1990). For example, a child's desire to belong to social groups can promote more positive behaviors if the group values and acknowledges the behavior. The child also can adopt socially appropriate norms when socialization agents are absent (Eisenberg, 1988).

Gender Differences in Empathy

Numerous studies have found that there is a significant interaction between children's gender and their empathic skills (e.g., Eisenberg, 1983, 1988; Owens & Ascione, 1990). Researchers consistently have found that girls are more likely to be more sympathetic to others and to be better care takers than boys. Observational studies of children with unfamiliar infants found that boys decrease and girls increase their behavioral interest in caring and responsiveness to babies as they approach the age of five (Melson & Fogel, 1982). However, when children's ideas about babies and their care were assessed, it was found that boys were just as knowledgeable in caring for babies as girls were (Melson, Fogel, & Toda, 1986). Additionally, Melson and associates found that boys' knowledge of human infants increased with age. Specifically, the presence of younger siblings increases a boy's knowledge just as it does for girls.

Although it is reported that boys showed less interest in nurturing babies when they were directly observed (Melson et al., 1986), it was found that boys scored higher than girls on knowledge tests concerning animals care. This difference between boys' knowledge about caring for animals and humans and their actual care giving behaviors, might de due to boys' perceptions relating to the appropriateness or

desirability of male gender-role behaviors, thus male students may show empathic behaviors toward humans with less frequency than girls.

I investigated the influence of intensified daily interactions with animals in the classroom on the development of empathy among Japanese students along with Ascione and Nakagawa (Maruyama, Ascione, & Nakagawa, 2005). We examined the effects of introducing animals into the classroom on students' empathetic behaviors and attitudes, and the generalization of animal-directed empathy in humans. We found that students' self-reported empathy toward animals correlated with their reported empathy towards people ($r = .19$, $p < .001$ for second and third graders; $r = .50$, $p < .001$ for fourth and fifths graders). Although female students scored significantly higher on the measure that assesses empathic attitudes toward humans (i.e., Index of Empathy), correlations between empathy toward animals and empathy toward humans were higher in male students than in female students for all ages examined. This finding supports the notion that animals may effectively promote a child's empathy, especially among male children (e.g., Melson & Fogel, 1982).

Humane Education

Even though G. Stanley Hall, one of the early founders of developmental psychology in the U.S., conducted a series of published psychological analyses on children's knowledge, behavior, and attitude toward animals by the late 1800s, the area of developmental psychology has been slow to treat animals as a significant element in the landscape of children's lives, and as important components of family life (Ascione, 2005). The animal-child approach to interaction became dramatically

popular after Levinson (1962) advocated for the effectiveness of animals in testing the psychological well-being of humans. Levinson (1978) claimed that empathy, self-esteem, self-control, and autonomy could be promoted in children by raising pets.

Since the early 1980s, scientific research on the effect of humane education has started to gain more attention. In 1915, American Humane Association endorsed a proposal that all states include humane education in their school systems' curricula. Twenty states had done so by 1922 (American Humane Association, 2010).

The role of pets in human development has become an emerging research area (Poresky et al., 1987). Although humane education in schools has concentrated on the lower elementary grades (Cameron, 1983), Fitzgerald (1981) suggested that the introduction of animals would actually be more influential when children reach the ages where they could take on daily chore responsibilities.

Because no standardized curricula for humane education has been established (Cameron, 1983), researchers have implemented various types of humane educational programs in an effort to determine how different types of programs affect children. These researchers were interested in studying the following kinds of questions: 1) How do children make moral decisions?; 2) What motivates children to help others?; 3) How do children learn, think, and feel about animals?; and 4) How do children interact with humans and animals?

Ascione (1992) examined the impact of a year-long humane education program on children. In the study, 32 classrooms (first, second, fourth, and fifth graders) were randomly assigned to an experimental and a control group. The

experimental group was introduced to humane education with printed materials. The effects of the program were measured according to children's attitudes toward animals and generalizations on the effects to human-directed empathy. Ascione found no significant attitudinal differences between the experimental and control groups in second graders' post-test scores on the measures that assessed children's humane attitudes toward animals. However, he found significant differences in fourth graders' scores between the control group and the experimental group. Additionally, he found attitude scale scores of both younger students (first and second graders) and the older students (fourth and fifth graders) were significantly correlated with a measure that assessed empathic attitudes toward other humans (Bryant, 1982). Ascione concluded that these correlations provided evidence for a relationship between children's positive attitudes toward animals and their human-directed empathy.

Numerous other studies have also found that children who spend time with animals by caring for them or interacting with them are more likely to also show empathic behaviors toward humans in the future (e.g., Ascione, 1992, 1993, 1997; Cameron, 1983, Fitgerald, 1981, Nakagawa, 1997. The literature from several researchers (Arkow, 1998; George, 1998; Levinson, 1969) indicates that the introduction of animals into the lives of children is particularly effective in developing morality, empathic behaviors, self-esteem, self-control, and responsibility. Levinson (1978) stated that "closeness to animals can reduce alienation" (p. 1031). Hyde, Kurdek, and Larson (1983) found a positive relationship between pet ownership, children's social sensitivity, and interpersonal trust. Nathanson and de Faria (1993)

found cognitive improvement in cognitively impaired children who worked with dolphins. As Poresky (1996) suggested, these findings indicate that child-animal interactions generally facilitate children's development. However, no specific mechanism is proposed to account for these results.

A Case Study from Japan: Effects of Classroom Pets on Japanese Students' Empathy

In 2005, I investigated the influence of intensified daily interactions with animals in the classroom on the development of empathy between Japanese students along with Ascione and Nakagawa. Specifically, we examined the effect of introducing animals into the classroom on students' empathetic behaviors and attitudes, and the generalization of animal-directed empathy in humans.

We invited 853 students (in grades two through five) from nine elementary Japanese schools to participate in the study. The schools were either engaged in intensive guided interactions with two to three guinea pigs per class (the experimental or E group) or classes that did not interact with guinea pigs or otherwise receive special curricula (the control or C group). Students were further divided into two groups by grade: younger students (second and third graders) and older students (fourth and fifth graders). Students in the E group cared for the guinea pigs throughout the academic year. Students completed surveys designed to measure children's empathy towards animals and humans at the beginning of the academic year (May 2003) and again 11 months later (March 2004), at the end of the year.

We found that the interactions between the older student scores improved (pre- vs. post-test score) and the treatment (with or without classroom pets) were significant

while no significant interactions were found in the younger students' data (see detailed analyses in Maruyama, 2005). The analysis also found that having a pet at home or having siblings were not significant factors on student scores on empathy measurements. This may indicate that the treatment may have been more effective for the older students. This finding is consistent with Piaget's theory of cognitive development. The older students are expected to have been in the concrete operational stage and thus would be more capable of cognitive operations like taking the perspective of another than are the younger students who are expected to have been in the pre-operational stage.

Subsequently, we investigated whether children's humane attitudes toward animals were related to empathetic skills toward humans. We found that students' self-reported empathy toward animals correlated with reported empathy towards people for all ages tested ($r = .19$, $p < .001$ for younger students; $r = .50$, $p < .001$ for the older students). Correlations between empathy toward animals and empathy toward humans were also found to be higher in male students than in female students for all ages examined (see more detail in Maruyama, 2005).

Findings from this study suggest that having pets may promote students' empathy toward animals and humans, and this effect seems to be stronger for male students than female students. Again, the specific processes through which this kind of emotional development takes place is not suggested by this study.

CHAPTER III: DEVELOPMENTAL THEORY

Developmental Processes and Mechanisms

If interacting with animals impacts children's social, emotional, or cognitive systems, what are the mechanisms or processes that produce these changes? Several developmental theories may be useful in thinking about how to explain changes that result from children's interactions with animals. Among these are: Piaget's Constructivist Theory; Selman's adaption of Piaget's work- Perspective-Taking Theory; and Vygotsky's Sociocultural-Historical Theory. Each of these perspectives and what they offer the current analysis is discussed below.

Piagetian Cognitive Developmental Theory

Piaget (1969) has identified four major periods of cognitive development: the sensorimotor stage, the preoperational stage, the stage of concrete operations, and the formal operation stage. Based on Piaget's theory, students in the current study (third to seventh graders) are expected to be in the preoperational stage, in the concrete operational stage, or in the formal operational stage. The main characteristics of preoperational thought are egocentrism, rigidity of thought, semilogical reasoning, and limited social cognition.

Egocentrism implies that children tend to perceive, understand, and interpret the world in terms of the self, and they cannot take another person's perceptual or conceptual perspective. Rigidity and semilogical thought refer to the idea that children in this stage think about the "before" and "after" states but ignore the process, and they focus on appearances rather than reality. As a result, preoperational children

have difficulty with the kinds of operations involved in understanding conservation thinking. Children often fail to distinguish between the certain properties of objects because they are unable to apply the concept of reversibility. Children in this stage do not possess the cognitive operations that would help them to overcome their perceptually based intuitive reasoning, inability to understand or apply reversibility, transformations, or steps of reasoning (Piaget & Inhelder, 1969).

Animism is also a characteristic of children who are in the pre-operational stage. Children in the pre-operational stage believe that everything and everyone is like them. As a result, children in the pre-operational stage believe that everything has some kind of consciousness. An example of this is that children often believe that the laundry machine does not start because it is tired.

Another aspect of the pre-operational stage in a child is that of moral realism. This is the belief that the children's way of thinking about the difference between right and wrong, is shared by everyone else around them. They are able to focus on only one aspect of a situation at one time, and they are not able to consider that anything else could be possible. Therefore, children in the pre-operational stage begin to respect and insist on obedience of rules at all times. Limited social cognition is exemplified in that children in this stage judge the wrongness of behaviors according to external incidents, such as how much damage was done and whether the act was punished (Miller, 1998). Children in this stage ignore internal variables, such as the person’s intentions. Children engaged in preoperational thinking may lack the ability to take another’s perspectives. They may not see animals and humans as the same animate

creatures that cannot be replaced. Although interacting with animals may stimulate and encourage children's private speech (Vygotskian view), interacting with animals may not be as effective in promoting preoperational children's perspective taking abilities because they may lack the ability to apply what people feel to what animals feel.

In contrast, children in concrete operational thinking (ages 7 to 11) are more successful in applying cognitive operations in thinking about objects, situations, and events that they have seen, heard, or otherwise experienced. Children in this stage have few difficulties in solving problems involving conservation or reversibility. Piaget (1969) suggested that children can apply their operation schemes only to objects, situations, or events that are real or imaginable. Although concrete operational children are less egocentric than preoperational children, they still have some difficulties with role taking and communication. Concrete operational children are beginning to take intentions into account while making moral judgments and displaying increasing awareness of the subtle social relationships in the family, peer group, and larger society (Miller, 1998).

Lastly, young adolescents in the formal operational stage (roughly ages 11 to 15) continue concrete operations one step further. They can take the results of these concrete operations and generate hypotheses about their logical relations. When faced with a complex problem, they can speculate about all possible solutions before trying them out in the real world. Thus, we now have operations on operations; thought has become truly logical, abstract, and hypothetical (Miller, 1998). Formal operational

adolescents can now imagine possible consequences before they take actions, systematically vary the factors one by one, and observe conclusions correctly. Most importantly, they can now more successful reflect on their own thinking and that of others, and taking perspective of others.

To investigate children's capacity to literally see things from another's point of view, Piaget and Inhelder (1967) conducted a study to investigate whether young children were capable of seeing object in other's point of view. Piaget and Inhelder placed a configuration of three three-dimensional simulated cardboard mountains on a table and a doll was rotated by the experimenter from one position to another. The child was shown ten different pictures to choose the one showing the scene the doll would see from its perspective. Subsequently, the child is to place the doll at a position which would give it a view corresponding to a particular picture. Lastly, child is given a set of flat cardboard pieces which s/he is to reconstruct to show what would appear on a snapshot if the doll were to take a picture from a specific viewpoint. From this experiment, Piaget and Inhelder found that youngest children simply do not have awareness that the doll has s view point other than the child's own and this egocentric stage lasts from four to seven years of age. Between seven and eight years the child becomes aware that there is a point of view other than his own, but his version regarding the dolls perspective at various positions is incorrect. Finally, child at nine or ten years can also formulate the correct version, indicating that she can take the other's visual role and accurately coordinate perspectives.

Following Piaget's theory of cognitive development, older children (i.e., children in the concrete operational or formal operational stages) are expected to be able to transfer their empathy or concerns toward animals to humans, or humans to animals because they are able to coordinate and apply the relevant schemes involved in the situation. However, younger children (i.e., children in the preoperational stage) may be beginning to learn and develop their concept of social relationships, and interacting with animals may promote young children's cognitive development. Introducing children to animals during such a sensitive period may produce optimal results in terms of promoting their abilities to take perspective of others and empathic behaviors toward others.

Piaget (1969) believed that children develop their knowledge via the construction of structures of knowledge through processes of organization and adaptation. Through organization, children systematically combine existing cognitive structures into new and more complex schema. Subsequently, the Piagetian mind always reconstructs and reinterprets the environment to make it fit in with its own existing mental framework (Piaget & Inhelder, 1969). Furthermore, it is assumed that the mind builds its knowledge structures by processing the external data by meanings of interpretation, transformation, and reorganization. Having constructed these schemata, a person applies them to make sense of the world (assimilation). Additionally, individuals encounter puzzles that force them to modify understandings through accommodation and equilibrating processes. When new events seriously challenge old schema or prove existing understandings to be inadequate, people

experience cognitive conflict. This cognitive disequilibrium then stimulates cognitive growth and the formation of more adequate understandings.

Piaget (1969) further described the child as a constructivist: an organism that acts on novel objects and events and thereby gains some understanding of their essential features. Children's constructions of reality or interpretations of objects and events depend on the knowledge available to them at that point in time. The more immature the children's cognitive system, the more limited their interpretation of an environmental event is. It is proposed that children's socio-emotional development and the quality of their perspective-taking abilities may be enhanced through certain kinds of interactions with animals. When children take care of animals, an animal's inability to speak forces children to evaluate what animals are experiencing (e.g. thinking, feeling) and interpret the animal's needs or behaviors as the child projects how an animal might feel. Thus, children might act upon one of several scenarios: 1) compare an animal's reactions from past experience (existing schema); 2) compare or match these behaviors; or 3) internalize whether or not their behaviors toward the animals were successful. It is expected that the child's internal thinking (i.e., reorganization and advancement) shapes their schema and enhances their cognitive development, especially the child's perspective-taking abilities. By interacting with animals, children naturally experience adaptation and decentration in order to develop effective relationships with animals. In addition, numerous studies have also found that when children care for animals it provides interactions that foster a greater likelihood of empathy towards other humans as the child matures into adulthood (e.g.,

Ascione, 1992, 1993, 1997; Cameron, 1983). More importantly, a child's experience in caring for an animal teaches a child behaviors absent in formal curriculum. Specifically, the role dependency on the part of the animal can teach children responsiveness to needs, interpretation of non-verbal behaviors, and taking responsibility for others.

Social Cognition: Selman's Stages of Perspective-Taking Theory

Perspective-taking refers to the individual's ability to understand different social perspectives, to coordinate these perspectives in the service of social reasoning, social problem-solving, and behavior regulation. Social perspectives refer to the capacity to recognize the difference in one's own and other's wants and needs (Selman, 1980). Very young children don't understand that other people have different feelings and experiences from their own (Piaget & Inhelder, 1969). This perspective-taking ability develops over time until it is quite sophisticated in adults. It seems that moving to higher stages of perspective involves taking in more information to form one's perspective.

Robert Selman, a developmental clinical psychologist, built his work upon the Piagetian structural-developmental foundation (Rosen, 1980). Selman regards role-taking as developing through an increasingly more complex hierarchy of invariant stages involving a process through which each succeeding stage becomes more adequate and inclusive as its represents a reorganization of concepts from the preceding stage. Selman (1980) developed a five-stage model to describe the development of perspective-taking. To investigate young children's abilities of

perspective-taking, Selman and his colleagues developed a story about Holly, an eight year old and known in town as a good tree climber.

> *One day Holly fell from the tree while she was climbing. Her father saw her fall. Although she was unscratched by her fall her father was upset. He asked her to promise not to climb trees anymore. Holly promised. Later that day, Holly and her friends found another friend's kitten caught in a tree unable to get down. Something had to be done right away or the kitten might fall. Holly was the only one that climbs trees well enough to rescue the kitten. What should she do?* (p. 13).

Selman and colleagues asked children how each person in the story would respond to the situation. Key questions were: What is the problem here? Why is that a problem? How do you think Holly feels? What are all the different things you can think of that Holly can try to solve the problem? What does Holly think her father would do if he found out she climbed the tree? Will her father punish Holly because she broke the promise?

Children's responses to these questions led Selman (1980) to conclude that role-taking abilities develop in stages. According to Selman, younger children (approximate ages 3 to 6) realize that others may have different perspectives from theirs. However, younger children often confuse their thoughts and feelings. They often believe that everyone's perspectives are the same as theirs. So, they might

respond “Holly should climb the tree because she is a good tree climber.” This response constitutes *undifferentiated* perspective-taking.

As children reach the ages 5 to 9 they realize that there are different perspectives for different people. However, these children believe that their own perspective is valid and the other perspectives are not valid. These children may answer, “If he didn’t know anything about the kitten, he would be angry. But if Holly showed him the kitten he might change his mind.” This case is an example of *social informational* perspective-taking.

As children reach the ages 7 to 12, they learn to walk in other people’s shoes. They develop the skill of empathy and they understand that others can be empathetic towards them as well. They might claim, “Holly knows that her father will understand why she climbed the tree.” This response assumes that Holly’s point of view is influenced by her father’s ability to “step in her shoes” and understand why she saved the kitten. *Self-reflective* perspective-taking is evident in such a response.

As children reach ages 10 to 15, they are capable of looking beyond two individual perspectives. In this case children realize there also can be a third party that is neutral and impartial to the task at hand. They also learn to look at the complete picture and keep multiple perspectives at the same time. These older children would answer, “Holly should not be punished because she thought it was important to save the kitten. She was well aware that her father told her not to climb the tree. She would assume she should not be punished if she could get her father to understand

why she had to climb the tree." Accordingly, this position reflects *third party* perspective-taking.

Around age 14, children now understand that third-party perspective-taking can be influenced by one or more systems of larger societal values. They would answer that "Holly should not be punished. The value of humane treatment of animals justified Holly's action. Her father's appreciation of this value will lead him not to punish her." This stage of perspective-taking represents *societal* perspective-taking.

Knowledge of these developmental stages assists us in understanding that there is no right or wrong perspective rather there are different perspectives. As children mature, they take more information into account and gain new understandings, thus, allowing children to understand that people perceive the world from different eyes and perspectives. In this study we used Selman's protocols to assess children's perspective-taking abilities.

Vygotsky's Sociocultural-Historical Theory

Vygotsky's Socioculutural-Historical Theory helps us understand why humane education in an environment with other peers (e.g., at school settings) and adults, either parents at home or counselors at summer camp, may be critically important for the development of empathy and more beneficial for children than interacting with animals by themselves alone.

Vygotsky was an active scholar in the 1920s and 1930s. Although he died before he fully developed his theory, his main theme is clear: Cognitive growth occurs in a sociocultural context and evolves out of the child's social interactions. He

believed that culture and social experiences affect how we think, not just what we think. Children acquire their society's mental tools by interacting with parents, other more experienced members of the culture, and by adopting their language and knowledge.

Vygotsky (1962) asserted that in the process of cognitive development, children acquire their culture's values, beliefs, and problem-solving strategies through collaborative dialogues with more knowledgeable members of society. While Piaget stressed children's independent work, Vygotsky believed that more experienced others (e.g., instructors or parents) play a significant role in a child's learning process and cognitive development. For Vygotsky, the construct of a *zone of proximal development* represents the gap between what learners can accomplish independently on their own and what they can accomplish with the guidance and support of a more skilled partner. Skills within this zone are ripe for development and are the skills where instruction should concentrate. Skills outside this zone are either well mastered or difficult. Development consists of moving toward the upper range of the zone using the tools of society.

According to Vygotsky's view, children learn by actively participating in culturally relevant activities with the support of their parents and the aid of other knowledgeable guides in a guided participation. A main goal of this scaffolding shifts the regulation of activity from the tutor to the child. As children interact with adults or more capable peers, children not only gain new information but learn how to think. Children will internalize the problem-solving techniques that they learned in working

with more skilled partners. Also, children will use these techniques on their own by applying the new found strategies to regulate their own performance. The notion of internalization applies to the development of higher mental functions and hence the social or cultural line of development.

Therefore, effective parental guidance in pet care at home may be an important factor whether students have positive attitudes toward their pets at home or not. It is expected that students who receive effective parental guidance in pet care at home have more successful in interacting with their pets, which may promote their positive attitudes toward pets as well as attachment with pets.

Integration of Developmental Theories

The theories on children's self and perspective-taking skills of Piaget (1969) and Selman (1980) focus on the developmental ages of children. Nonetheless, as I discussed earlier some older children appear to lack perspective-taking abilities. However, guiding children to be kind to animals could be effective in promoting perspective-taking abilities of the older children in those cases where there is a deficiency in the development of perspective-taking skills as the skills typically evident in younger children. If children have more opportunities to interact with animals in their daily life, naturally they have more occasions to take the perspective of animals in order to make their interactions with animals more positive experiences. This experience may help develop their ability to take the perspective of others. This ability is expected to be applied when a child interacts with other people.

Consequently, such opportunities could promote children's emotional development and social success.

There are numerous benefits to perspective-taking, and one primary advantage is effectiveness in relating to others. Developing effective interpersonal relationships is one aspect of emotional intelligence, which is important for happiness and health. The ability to understand and empathize with others increases our rapport and trust with others. These traits often allow a person to effectively discuss or resolve issues or conflicts. These skills are essential both in the home and at school.

Developing an ability to see different perspectives also allows a person how to focus on possible consequences of their choices and actions before taking action. One benefits from learning to make conscious decisions. Perhaps more appropriate decisions result for an individual and for others. The more conscious a person is about the choices made the more one can learn from their mistakes. Teaching a child to be kind to animals may be one of several effective ways to raise children to become healthy adults.

However, to promote the ability to take the perspective of others, one needs to experience conflicting situations with others, perhaps repeatedly. One needs to actively learn how to resolve the conflict for future cases. For Piaget this was a critical role that peers play in fostering cognitive development. Taking Vygostkian views, humans are never self-sufficient creatures. As children learn languages or how to behave appropriately in the society by observing their parents and others, there is also a need to guide children in how they should interact with animals. To interact

with animals positively, they have to learn to think to as an animal would. Even if tutors do not explicitly instruct children in face-to-face interaction, children can still learn from skilled tutors at a distance by observing everyday activities without any intention on the tutor's part to teach children. Observing other's caring behaviors will assist children in adapting their understanding to new situations, structuring problem solving attempts, and assisting them with assuming responsibility for managing problem solving (Rogoff, 1990). By observing how pets are treated in a home, children learn how to treat other vulnerable members of the family and about the ways their caregivers use to modify behaviors that may have a negative effect on other family members (Ascione, 2005). Children may adopt these strategies by themselves.

CHAPTER IV: RESEARCH QUESTIONS OF THE CURRENT STUDY

Research Questions

The purpose of this study is to examine the extent to which the presence of a pet makes a difference in student's socioemotional development, how the quality of students' relationship with a pet may be an important factor in influencing their development of empathy, and how the combination of students' home environment and quality of relationships with a pet may be important for these developmental processes. In the study, I will focus on students' development of perspective-taking abilities through interacting with animals.

I am interested in investigating whether students who own pets at home and who were given or allowed more responsibility for the care and welfare of the family pet and/or who indicate having stronger attachment toward their pets, demonstrate higher level of perspective-taking abilities than students who do not have a pet or do not have very much responsibility for their pets at home or show weaker attachment toward their pets. I am also interested in how different parental guidance practices in the care of the family pet care (e.g., guiding participation in taking care of pets at home) as well as family background (e.g., family structure) affect students' different level of socio-emotional development (i.e., perspective-taking abilities).

Hypotheses

In this study I will be examining four specific questions: 1) How is the strength of attachment with pets related to students' humane attitudes toward animals and humans?: 2) How is the strength of attachment with pets related to students'

perspective taking abilities?; 3) How are students' humane attitudes toward animals, empathic attitudes toward humans, and perspective-taking abilities correlated each other?; and 4) What is the relationship between the amount and quality of parental guidance in pet care students receive and students who do not receive any parental guidance in pet care on students' perspective-taking abilities?

Corresponding to those four research questions I proposed four hypotheses in this study:

Hypothesis 1: Students who show stronger attachment (score significantly higher on the Bonding Scale) will show more humane attitudes toward animals and toward humans than students who show weaker attachment with their pets.

Hypothesis 2: Students who show stronger attachment (score significantly higher on the Bonding Scale) will show higher levels of social cognitive development on Selman's Dilemmas than students who score lower on the Bonding Scale.

Hypothesis 3: The students' correlation among measurements that assess humane attitudes toward animals (Animal Treatment Survey, and Fire Fighter Survey), empathic attitudes toward humans (Empathy Survey), and their stage of perspective-taking abilities (Selman) will be significantly correlated each other.

Hypothesis 4: Students who receive effective parental guidance in pet care have the stronger attachment as well as show more advanced perspective-

taking abilities (Selman's interviews) than students who do not receive effective parental guidance in pet care on students' perspective-taking abilities.

There are five dependent variables used in the study: 1) attitudes toward animals (Fire Fighter Survey); 2) behaviors toward animals (Animal Treatment Survey); 3) attachment to animals (Bonding Scale); 4) empathy toward humans (Empathy Survey); and 5) perspective-taking (Selman's Interviews).

Five different factors will also be investigated to determine how each factor is related to students' strength of attitudes and behaviors toward animals as well as attachment to their pets: 1) Age; 2) Gender; 3) Pet ownerships; 4) Types of pets; and 5) Responsibility of pet care (See Appendix A).

CHAPTER V: METHODS AND PROCEDURE

Overview

The study uses a variety of measures to investigate whether the levels of children's engagement with and the degree of responsibilities they have for their pets affect their attitudes toward animals, empathy for humans, and ability to take the perspective of others.

Students who have been part of the I Have a Dream After School Program and experienced a Humane Education Program at their elementary school as a part of this program, and an additional group of students who participated in the Summer Camp Program offered by the Oregon Humane Society are the primary participants in the study. All students completed survey questionnaires, as well as a more in-depth interview assessing their level of perspective-taking.

Participants

Participants consisted of students who attended the Oregon Humane Society's (OHS) Summer Camp Program from June to August (Summer Camp Program), and students who participated in a monthly humane education program as part of their after school program (After School Program) (See Table 1). Age of participants range from 10 to 14, with a mean age of 10.32 (SD = 1.29).

Participants were examined to determine whether interacting with animals (pet ownerships) with different levels of engagement (i.e., score higher on the Bonding Scale) or responsibility (i.e., answer students are "Always," "Generally," or "Often"

responsible for their pet care) affects students' attitudes and behaviors towards animals, their empathy towards humans, and their perspective-taking abilities.

Table 1

Numbers and Gender of participants

	Summer Camp	After School	Total
Males	4	18	22
Females	26	17	43
Total	30	35	65

After School Program participants

The "I Have a Dream" foundation is a community foundation that is organized to help students from low-income communities by providing a long-term program of mentoring, tutoring, and enrichment to support the students in graduating from high school ("I Have a Dream" homepage, 2009). The foundation provides students with an After School Program. As part of the After School Program, all students visit the OHS once a month throughout the academic year.

As a part of my on-going research activities in collaboration with the Oregon Humane Society and I Have A Dream Foundation, we collected data on students levels of empathy using a variety of measures at the end of academic year (May, 2009) and conducted face-to-face interviews designed to assess perspective-taking abilities with students in December 2009. Classroom teachers collected surveys from their students during the class time, and teachers read aloud each question for students.

Summer Camp Program participants

The Oregon Humane Society (OHS) offers Summer Camp Programs (intensive humane education programs) for youths every summer. The camp sessions last all day (9:30am to 4:00pm), and each session is held for 3 to 5 days to a week (from June 15th to August 20th, 2009). Third through seventh graders participated in this voluntary Summer Camp Program. Students who participated in the Summer Camp were in an intensive humane education program with animals at the OHS throughout the length of the camp. Additionally, students at the Summer Camp helped to promote adoption of sheltered animals. Through the program, students were expected to learn socializing, training, and grooming sheltered animals with the assistance of staff members at the OHS.

Table 2

Summary of Study Participants and Procedures

	After School Program (I Have a Dream foundation)	Summer Camp Program (OHS)
Participation duration of students	Year long (students participate in the monthly humane education program)	Five days intensive humane education program between June to August 2009
Age of participants	Fourth graders	Third to Seventh graders
Data Collection Date (Survey)	May 2009	June to August 2009 (survey packets as well as an envelope to return the completed survey were handed to all camp participants during the camp)
Data Collection Date (Interviews)	December 2009 (Face to face interviews at the school setting)	June- August, 2009 (Students chose time to participate in the telephone interviews)

Measures

There were seven surveys and one telephone (Summer Camp students) or face-to-face interview (After School Program students). Surveys and questionnaires were designed to measure children's attitudes toward animals and humans, and the interviews to assess their development of perspective-taking abilities. Except the Parental Survey, all other survey measurements and interview instruments had previously been validated by other researchers and consist of both quantitative and qualitative measures.

a) Selman's Perspective-Taking Stage Theory (Appendix C and D)

Undergraduate and graduate research assistants who were majoring in psychology or liberal arts study at Portland State University and I conducted telephone interviews with the Summer Camp participants and face-to-face interviews with After School Program students. For Summer Camp students, it was not possible for us to do face-to-face interviews as requested by the program coordinator due to the limited time schedule of the Summer Camp program , therefore we used telephone interviews on a day (and the time) the participants and their guardians chose (they were asked for their availability in advance). For students who were in the After School Program, we visited the classroom to conduct the Selman interviews for those students who agreed to participate (December, 2009).

Each interview last approximately 10 to 15 minutes. For the Summer Camp students, we did not record the interviews as we conducted interviews on the phone. Therefore, research assistants who interviewed students took notes during the interviews. We recorded the interviews with the After School Program students.

During the interviews, we read two hypothetical stories to students taken from Selman's work (1980). After we read the stories, students were asked questions based on a script to assess their stages of perspective-taking abilities. The goal of employing this instrument was to assess students' level (stages) of perspective-taking abilities based on Selman's perspective-taking theory, thus students' responses were coded according to Selman's stage theory.

Trained undergraduate research assistant and I coded students' responses to interview questions (Selman's interviews) to decide which perspective-taking stage each student has reached. Cohen's Kappa coefficient was performed to examine the interrater reliability of the data coding, and it indicated the acceptable level of reliability (Kappa = .72)

b) Background Information Survey (Appendix E)

I developed this survey to assess students' daily activities, family formation, experience with pets, and relationships with friends, siblings, teachers, and neighbors in the current study. The goal of employing this survey was to provide information for grouping students based on their background experiences (e.g., have siblings, have pets) and run further analyses using other surveys (e.g., Index of Empathy). Examples of the Background Information Survey questions are: 1) "Check the people whom you live with"; 2) "How often do you play with your pet?"; 3) "How often are you responsible for your pet's care?"; 4) "How often do you talk with elder people?"; and 5) "How often do you take care of children younger than you?" The extent to which students interact with animals and people who are different than themselves, e.g., the elderly and younger children, can impact the development of perspective-taking because of the conflicts that may arise that need resolution. It is in resolving these discrepancies, Piaget argued, that children make accommodations in their structures of thinking.

c) Companion Animal Bonding Scale ("Bonding Scale," Appendix E)

In the Background Information Survey, eight questions (question 3 to question 10) were included from the Companion Animal Bonding Scale (CABS) developed by Poresky and associates (1987). The Companion Animal Bonding Scale assessed children's attachment to their pets, and the goal of employing this instrument was to assess students' strength of attachment to their pets. I predicted that the stronger the attachment the more likely children were to develop empathy and perspective-taking abilities.

The scale was reported to have high internal consistency of .82 (Poresky, 1987). Examples of CABS questions are: 1) "How often were you responsible for your companion animal's care?"; 2) "How often did you clean up after your companion animal?"; and 3) "How often did you hold, stroke, or pet your companion animal?" The scale total score is the sum of the item responses with always = 5 points, generally = 4 points, often = 3 points, rarely = 2 points, and never = 1 point. In the current study, I changed the word "companion animals" to "pets" to be consistent with other questions in the Background Information Survey.

d) Revised Billy (Sally) and the Fire Fighter Survey ("Fire Fighter Survey," Appendix F and G)

This questionnaire was developed by Vockell and Hodal (1980) to assess children's attitudes towards animal life. Students were asked to select a few items from a larger set that they would try to "save in the case of a fire." LeJeune, Miller-Jones, and I revised this questionnaire considering current social backgrounds. The

original questionnaire was developed in 1980, therefore the values for some material has changed. For instance, today's children may value portable music player (e.g., IPod) or cell phone more over the record player or house phone. Additionally, we changed the word "fireman" to "fire fighter" as well as we changed the name "Billy" to "Sally" for surveys that female students would complete. Thus, female students completed the questionnaires with "Sally" version and male students completed the "Billy" version questionnaire. Scenario and answer options were the exactly same.

In the questionnaire, children were told that the house of a boy (Billy) or a girl (Sally) who was about the same age as they were was now on fire. The fire fighter told the boy or the girl that his/ her house would be burned down, and he or she could save only three things from his or her house before the house would be totally destroyed. Students were given a list of ten objects in house (i.e., cats, dogs, computer, and cell phone) and had to choose three of them that they think the boy or the girl in the story should save. The rationale behind this instrument was that a person with favorable attitudes toward animal life would choose the animals, since they cannot be replaced Students who chose animals to save receive a score of one for each animal, thus scores ranged 0 to 3. Then, we added questions to ask students what their parents and sibling would pick from the list if the fire fighter approached their parents and sibling instead of them. This provided an additional indication for how students could take the perspective of others (i.e., their parents and siblings). Examples of questions are "If the fire fighter approaches your parents instead of you, what 3 things from the list would your parent pick?"; and 2) "If the fire fighter approaches your

brother or sister instead of you, what 3 things from the list would your brother or sister pick?"

e) Pet Ownership Survey (Appendix H)

The Pet Ownership Survey was developed by Daly and Morton (2003). The questionnaire consisted of 13 questions about students' demographic information, including their experiences with pets at home with yes-no responses and open-ended responses. The goal of employing this survey was to provide a basis for grouping students based on their backgrounds (e.g., histories of pet ownerships) and to conduct further analyses exploring the relationships between demographic characteristics of students with their responses on other surveys (e.g., Index of Empathy Revised Survey). Examples of questions are: 1) "Do you have a pet (or pets) now?"; 2) "How long have you had your pet or pets?"; 3) How do you feel about your pet or pets?"; 4) "Have you ever had a pet in the past?"; and 5) "Have you ever lost a pet?"

f) What should you do? Survey ("Knowledge of Animal Care Survey," Appendix I)

The "What should you do?" Survey was developed by Shiveley, the director of the Humane Education Program at the OHS. This survey was employed in the current study because I was interested in understanding whether it was the knowledge or understanding of animals that contributes to students increased empathy and perspective-taking scores.

The questionnaire consisted of 12 questions, including children's treatment of animals. The goal of employing this survey was to assess students' understanding of

animal care and knowledge about animals. Examples of questions are: 1) “If you see a dog you don’t know, you should run up to it and say hello”; 2) “If a dog is on a leash, ask permission to pet someone’s dog.”; 3) “Once you’ve got permission, walk straight toward the dog, look it in the eyes and pat it on the head.”; 4) “Dogs, cats and all pets love big tight hugs”; and 5) “Dogs chase moving things including cars, cats, squirrels and toys so the best thing to do is freeze if you don’t want a dog to chase you.” More empathic responses received two points and less humane responses received a score of one point. The survey is under revision. Currently, no information is available about its measurement characteristics.

g) The Index of Empathy Revised Survey (“Empathy Survey,” Appendix J)

This questionnaire was a combination of the Index of Empathy questionnaire, which was developed by Bryant (1982) to assess children’s empathy toward humans. The Index of Empathy consisted of 22 items with yes-no responses. Since the Index of Empathy was developed to assess children’s empathic attitude toward other humans, LeJeune added 8 questions to assess children’s empathic attitude toward animals. The format and scales used for these additional 8 questions were consistent with the Index of Empathy.

The goal of employing this survey was to assess students’ empathic attitudes toward humans as well as animals. Examples of questions are: 1) “It makes me sad to see a girl who can't find anyone to play with”; 2) “People who kiss and hug in public are silly”; 3) “Boys who cry because they are happy are silly”; 4) I really like to watch people open presents, even when I don't get a present myself”; and 5) “Seeing a boy

who is crying makes me feel like crying." Example questions of the additional 8 questions are: "Animals don't care if you're mean to them" and "Dogs don't need friends or companions like children do."

More empathic responses received a score of two and less humane responses received a score of one point. Alphas coefficients were reported to range from .54 to .79.

h) The Children's Treatment of Animals Questionnaire (CTAQ) ("Animal Treatment Survey," Appendix K)

The Children's Treatment of Animals Questionnaire was developed by Thomson and Gullone (2003) to measure children's humane behavior toward animals. The goal of employing this survey was to assess students' quality of treatment toward their pets. The CTAQ contains 13 questions, and its reliability was high (.81: boys = .74; girls = .85). Example questions are: 1) "I play with my pet"; 2) "I give food or water to my pet"; 3) "I take my pet for a walk or exercise my pet"; 4) "I pet my pet"; and 5) "I yell at my pet." Students are required to indicate whether they "Often" (score = 3), "Sometimes" (score = 2), or "Never" (score = 1) engage in the particular activity.

i) Parental Survey (Appendix L)

I developed this survey to investigate how parents report children were interacting with pets at home and how their parents might be guiding children to interact with their pets at home. The goal of employing this survey was to assess how parents might be providing guidance or scaffolding in their interactions with their

child while taking care of pets at home (e.g., cleaning, feeding, exercise, or play). The example of questions are: 1) "Who takes major responsibility of your pet at home?"; 2) "How often does your child have to take responsibility for the pet at week?": and 3) "How do you guide your child when s/he forgets to take care of the pet?" From these items a scale of "effective parental guidance" were derived. Students were placed into either high, or low parental guidance groups.

Procedure

The humane education for students as an After School Program (offered by the I Have a Dream foundation) and as a Summer Camp Program (offered by the OHS) are ongoing annual programs. The detailed procedures that were followed to data collections in for each program are outlined in the follows:

Summer Camp Program

At the end of the first day of the camp, I visited the class and explained the research opportunities to camp participants. I handed out a packet, which included a consent form, a letter for their parents, surveys, and pre-stamped envelope, to students who were interested in participating in the study. The consent form informed their guardians about the purpose of the study and of their children's rights to choose to participate in the study. Children were informed of the voluntary nature of questionnaires as well as the procedures and questionnaires relating to this project. I included Spanish translations of the informed consent form along with the English consent form. Finally, parents were encouraged to ask questions and contact researchers at any point during the time of study. Students and parents who

participated in the survey mailed back the surveys, the consent form and the interview availability form to me using the enclosed pre-stamped envelope. If participants were interested in the telephone interview, the research assistants and I called them at their requested schedule on the form. Some students (about 10 students) from the After School Program participated in the Summer Camp program, and may have completed the surveys as a part of the After School Program in May 2009. Those students did not complete the surveys at the Summer Camp, which they had already done as part of the After School Program, but they did participated in the Selman Perspective-Taking interviews.

After School Program

To collect data from students in the After School Programs, I left the consent forms with the program director as the students' guardians needed to read them and fill them out before they participate in the study. The program teachers collected surveys from students during the program class time at the end of the academic year (May 2009) if they had already submitted the consent form to the program director in advance. I sent another letter and consent form to students' parents in the in November 2009 to ask permission for their children's participation in the face to face Selman interviews in the school setting in December, 2009.

I employed three undergraduate research assistants who were majoring in psychology or liberal arts to conduct face-to-face interviews at the school setting. All research assistants completed training sessions offered by Dr. Miller-Jones and myself. Two research assistants coded the interview script. An interrater reliability

was assessed to determine the consistency of the implementation of a rating system, and it was acceptable (Kappa = .72).

CHAPTER VI: ANALYSIS OF DATA

Overview

The major dependent measures for the study are students' *empathy* and *perspective-taking* scores. The main variables predicted to influence students' responses on these measures are students' age, gender, and their experiences with pets at home, especially the degree of attachments, responsibility for the care and well-being of their pets, and parental guidance or mediation of the child's experience.

Participants completed a set of questionnaires that consisted of the Background Information Survey (the survey consists of questions about students' background information, see Appendix E), Pet Ownership Survey (the survey consists of questions about students' experiences of pets, see Appendix H), What Should You Do? Survey (the survey consists of ideas of animal care, see Appendix I), The Index of Empathy Revised Survey ("Empathy Survey," the survey consists of questions about students' empathic attitudes toward humans, see Appendix J), CTAQ-Revised Survey ("Animal Treatment Survey," the survey consists of questions about students' humane attitudes of animals, see Appendix K), and the Billy and the Fire Fighter Survey ("Fire Fighter Survey," the survey consists of questions about students' attitudes toward animals, see Appendix F & G). Additionally, a survey about students' experiences with pets at home were collected from students' parents (see Appendix L).

Results were compared between groups (e.g., students who showed strong attachment vs. students who showed weak attachment toward pets). A linear

regression analysis, Chi-Square test (χ^2), and Correlation Coefficient test were conducted to assess the quality of interaction with pets on children's humane attitudes toward animals and humans, empathy, as well as their perspective taking abilities. Students' gender, experience with animals (e.g., pet ownership experiences), and the program students belong to (i.e., Summer Camp program or After School program) were also entered as factors in the analyses.

Missing Data

Although I encouraged students to answer all questions, some students skipped questions on survey measurements. To obtain as much accurate data as possible, I employed a mean imputation technique for these missing random data. The mean imputation technique estimated the missing values by using predicted values gained from existing data. If students did not answer 30 percent of a measure or answer questions in a certain pattern (e.g., chose "*Yes*" for all questions or made one circle for 20 questions), I employed listwise deletion.

Background Analyses

A total of 76 students participated in the current study (31 students were from the OHS Summer Camp and 45 students were from the After School program). Twenty-five students were males (33.0%) and 51 students (67.0%) were females. Mean age of the students was 10.32 (*SD* = 1.23, N= 71). Students' ethnicity was significantly different across the groups, with the majority of the students attending the

Summer Camp being European American (OHS Summer Camp vs. After School Program), χ^2 (59) = 31.03, $p < .001$, $n = 59$ (See Table 3).

Table 3

Students' Ethnicity

	Camp	After School	Total
European American	23	4	27
African American	1	6	7
Hispanic/Latino	0	10	10
Asian	0	4	4
Others	5	6	11
Total	29	30	59

Pet ownership was significantly different across the group (Summer Camp vs. After School Program). Students from the OHS Summer Camp owned significantly more pets at home ($n = 27$) than students from the After School Program ($n = 19$), χ^2 (1) = 14.48, $p < .001$, $n = 71$ (See Table 4). Additionally, students from the OHS Summer Camp own significantly more dogs or cats as pets ($n = 23$) than students from the After School Program (n = 8), χ^2 (1) = 11.01, $p < .01$, $n = 45$ (See Table 4).

Table 4

Pet ownerships and Types of Pets

	Camp	After School
Own Pets at Home	27	19
Dogs or Cats as pets	23	8
Other types of pets	3	11
Do not own pets at home	3	22

Detailed analyses (independent-sample *t* tests) on how these students' backgrounds (i.e., Age, Gender, Group, and Pet Ownerships) are significantly related to students' attitudes toward animals and humans as well as their abilities of perspective taking were also conducted (See Appendix A).

Hypothesis Analyses

Subsequently, how students' attitudes and behaviors toward animals related to their attachment with their pets as well as their abilities of perspective taking are investigated.

1. *Is there a relationship between the strength of attachment with pets and humane attitudes toward animals and humans?*

   Hypothesis 1): Students who show stronger attachment (score significantly higher on the Bonding Scale) will show more humane attitudes toward animals and toward humans than students who show weaker attachment with their pets.

In other words, students who score significantly higher on the Bonding Scale will score significantly higher on measurements that assess humane attitude toward animals (Fire Fighter Survey, Animal Treatment Survey, What should you do? Survey) and toward humans (Empathy Survey) than students who score lower on the Bonding Scale.

a) Attachment with Pets and Humane Attitudes toward Animals

A linear regression analysis was conducted to evaluate the prediction of students' attitudes toward animals (Fireman Survey) from the strength of attachment with their pets (Bonding Scale). The regression equation was $\hat{Y}$ = .04* Bonding Scale Score + 1.26. The 95% confidence interval for the slope was .01 to .07. The scatterplot for the two variables, as shown in Figure 1, indicates that the two variables are linearly related. These results suggest that students who have strongly attached with their pets tended to have more humane attitudes toward animals. The accuracy in predicting the students' humane attitudes toward animals based on their strength of attachment is moderate[1]. The correlation between students' attachments with their pets and their humane attitudes toward animals was .36, t (45) = 2.59, $p < .05$. Approximately 13% of the variance of the attachment with pets was accounted for by its linear relationships with humane attitudes toward animals. However, as show in Figure 1, humane attitudes toward animals (Fire fighter score) is a better predictor of students who have higher Bonding Scale scores.

[1]Effect size of r is interpreted as r = .10, .30, .50 small, medium, large respectively.

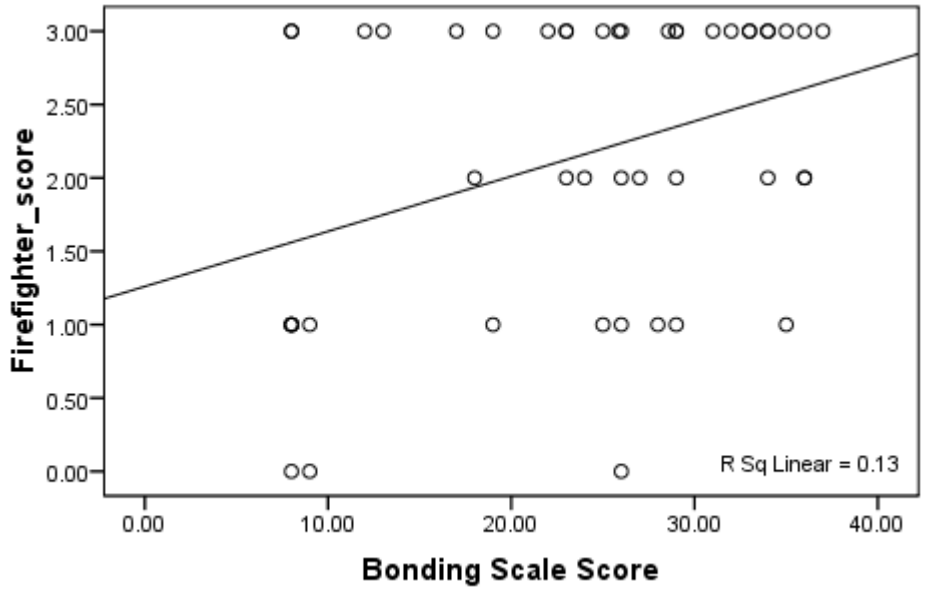

Figure 1 *Attachment with pets and attitudes toward Animals*

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b) Attachment with Pets and Knowledge of Animal Care ("Bonding Scale" and "What should you do? Survey")

A linear regression analysis was conducted to evaluate the prediction of students' knowledge of animal care (What should you do? Survey) from the strength of attachment with their pets (Bonding Scale). The regression equation was $\hat{Y}$ = .07* Bonding Scale Score + 17.85. The 95% confidence interval for the slope was .03 to .10. The scatterplot for the two variables, as shown in Figure 2, indicates that the two variables are linearly related. These results suggest that students who have strongly attached with their pets tended to have more knowledge of animal care than students who do not have strong attachment with their pets. The accuracy in predicting the students' humane attitudes toward animals based on their strength of attachment is between medium and large. The correlation between students' attachments with their

pets and their knowledge of animal care was .41, t (57) = 3.35, $p < .01$. Approximately 17% of the variance of the attachment with pets was accounted for by its linear relationships with knowledge of animal care. However, as shown in Figure 2, knowledge of animal care is a better predictor of students who scored higher on the Bonding Scale.

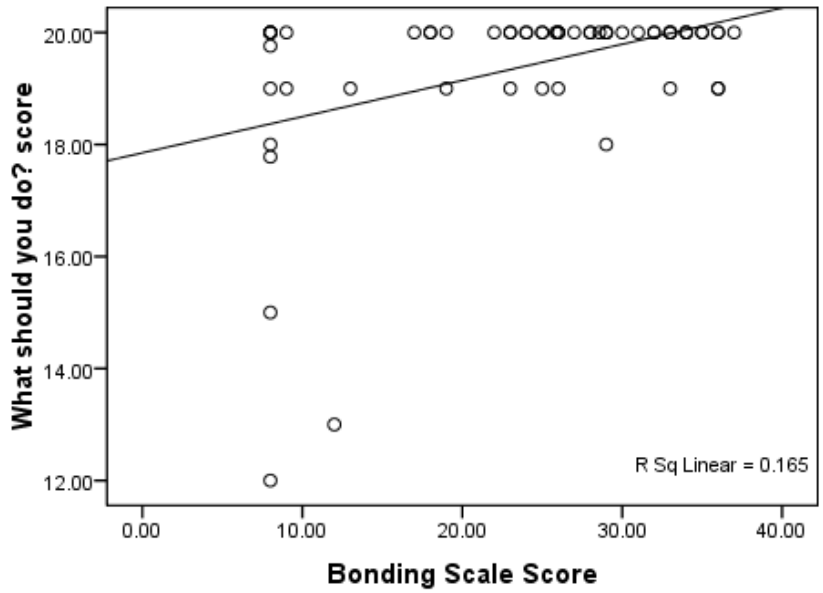

Figure 2 *Attachment with pets and knowledge of animal care*

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c) Attachment with Pets and Humane Treatment toward Animals ("Bonding Scale" and "Animal Treatment Survey")

A linear regression analysis was conducted to evaluate the prediction of students' humane treatment of animas (Animal Treatment Survey) from students' strength of attachment with pets (Bonding Scale). The regression equation was $\hat{Y}$ = .54* Bonding Scale Score + 1.30. The 95% confidence interval for the slope was .40 to .67. The scatterplot for the two variables, as shown in Figure 3, indicates that the

two variables are linearly related. These results suggest that students who have strongly attached with their pets tended to treat animals more humanely than students who do not attach with their pets strongly. The accuracy in predicting the students' humane attitudes toward animals based on their strength of attachment is large. The correlation between students' attachment with their pets and their humane treatment of animals was .73, t (56) = 7.97, $p < .001$. Approximately 53% of the variance of the attachment with pets was accounted for by its linear relationships with humane treatment of animals. However, as shown in Figure 3, humane treatment of animals is a better predictor of students who scored higher on the Bonding Scale.

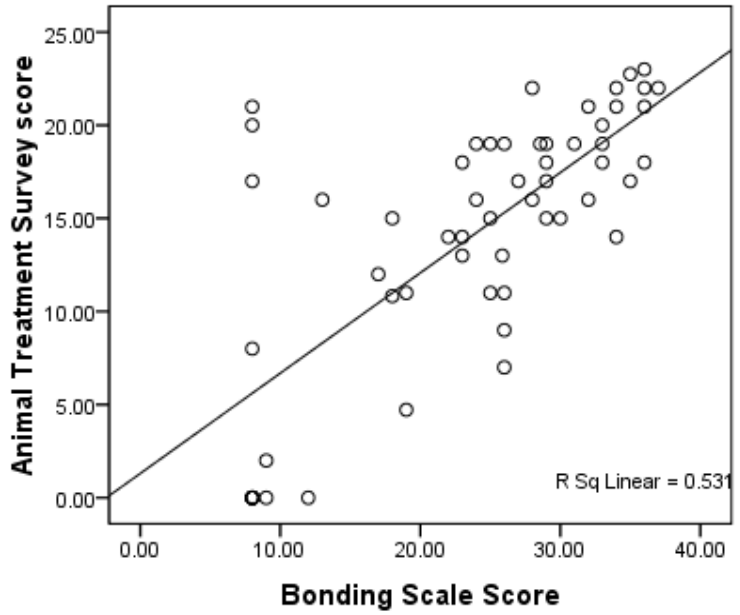

Figure 3 *Attachment with pets and humane treatment of animals*

d) Attachment with Pets and empathy toward humans ("Bonding Scale" and "Empathy Survey")

A linear regression analysis was conducted to evaluate the prediction of students' empathy toward humans (Empathy Survey) from students' strength of attachment with pets (Bonding Scale). The regression equation was $\hat{Y}$ = .28* Bonding Scale Score + 37.12. The 95% confidence interval for the slope was .01 to .54. The scatterplot for the two variables, as shown in Figure 4, indicates that the two variables are linearly related. These results suggest that students who have strongly attached with their pets tended to be more empathetic toward humans. The accuracy in predicting the students' humane attitudes toward animals based on their strength of attachment is medium. The correlation between students' attachments with their pets and their empathy toward humans was .27, t (55) = 2.09, $p < .05$. Approximately 7.3% of the variance of the attachment with pets was accounted for by its linear relationships with empathy toward humans. However, as shown in Figure 4, empathy toward humans (Empathy scores) is a better predictor of students who scored higher on the Bonding Scale.

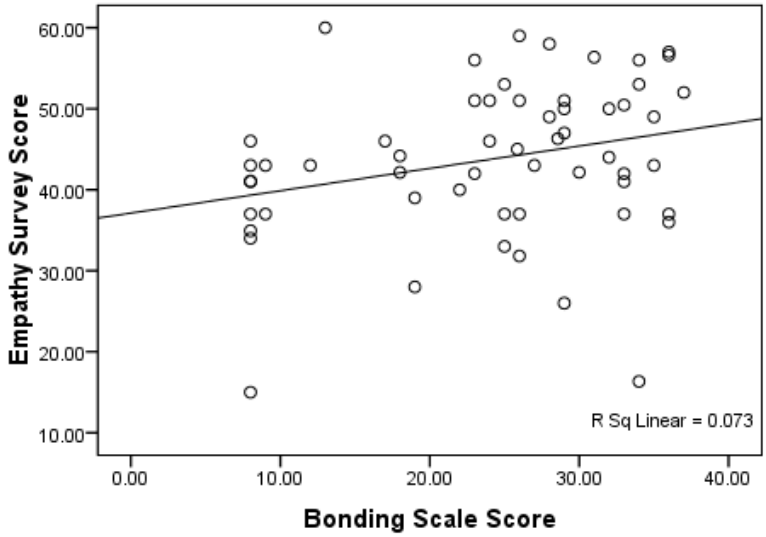

Figure 4 *Attachment with pets and empathy toward humans*

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2. *Is there a relationship between strength of the attachment with pets and students' perspective-taking abilities.*

Hypothesis 2): Students who show stronger attachment (score higher on the Bonding Scale) will show higher levels of social cognitive development on Selman's Dilemmas than students who score lower on the Bonding Scale.

A linear regression analysis was conducted to evaluate the prediction of students' perspective taking abilities (Selman's interviews) from students' strength of attachment with pets (Bonding Scale). The regression equation was $\hat{Y}$ = .05* Bonding Scale Score + 2.48. The 95% confidence interval for the slope was .03 to .07. The scatterplot for the two variables, as shown in Figure 5, indicates that the two variables are linearly related. These results suggest that students who have strongly attached with their pets tended to have higher level of perspective taking abilities. The

accuracy in predicting the students' humane attitudes toward animals based on their strength of attachment is large. The correlation between students' attachments with their pets and their perspective taking abilities was .74, F (1, 18) = 21.52, $p < .001$. Approximately 54.5% of the variance of the attachment with pets was accounted for by its linear relationships with perspective taking abilities.

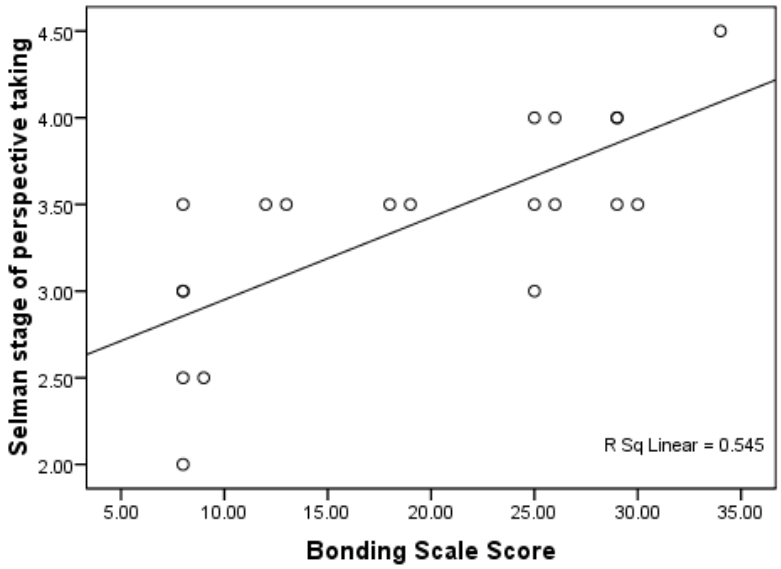

Figure 5 *Attachment with pets and the stage of perspective taking abilities*

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3. *Are there correlations between students' humane attitudes toward animals, empathic attitudes toward humans, and perspective-taking abilities?*

Hypothesis 3): The students' correlation among measurements that assess humane attitudes toward animals (Animal Treatment Survey, and Fire Fighter Survey), empathic attitudes toward humans (Empathy Survey), and their stage of perspective-taking abilities (Selman) will be significantly correlated each other.

Correlation coefficient was computed among the Animal Treatment Survey, the Fire Fighter Survey, the Empathy Survey, and students' stage of perspective-taking abilities (Selman). The results of correlation analyses presented in Table 5 show that 11 out of 16 correlations were statistically significant. The correlations of Selman's perspective taking stages and students' attitudes toward animals and humans as well as knowledge of animals are not significant.

In general, the results suggest that students who have more knowledge of animal care tend to treat animals or other humans in more empathic way as well as tend to show stronger attachment with their pets. Students who show stronger attachment with their pets tend to treat animals and humans in more empathic way and also have higher perspective taking abilities. It was found that knowledge about animal care and the strength of children's attachments with their pets are the significant factors of students' perspective taking abilities, though students' perspective taking abilities appear to be independent of their level of empathy toward humans

.

Table 5

Correlations between Measures

		Knowledge of Animal Care	Attitudes toward animals	Humane animal treatment	Attachment with Animals	Empathy toward humans	Perspective taking abilities
Knowledge of Animal Care	*r*	1.00	.232	.452**	.406**	.531**	.138
	n	61	48	58	59	58	19
Attitudes toward animals	*r*	.232	1.00	.467**	.360*	.392**	.312
	n	48	50	49	47	50	14
Humane animal treatment	*r*	.452**	.467**	1.00	.729**	.402**	.738**
	n	58	49	60	58	58	19
Attachment with Animals	*r*	.406**	.360*	.729**	1.00	.312*	.738**
	n	59	47	58	61	57	20
Empathy toward humans	*r*	.404**	.349*	.395**	.271*	1.00	.061
	n	58	50	58	57	61	17
Perspective taking abilities	*r*	.138	.312	.738**	.738**	.084	1.00
	n	19	14	19	20	17	29

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

4. *What are the relationships between the amount and quality of parental guidance in pet care students receive and students who do not receive any parental guidance in pet care on students' perspective-taking abilities?*

Hypothesis 4: Students who receive effective parental guidance in pet care have the stronger attachment as well as show more advanced perspective-taking abilities (Selman's interviews) than students who do not receive effective parental guidance in pet care on students' perspective-taking abilities. In other words, students whose parents answered that they provide more effective parental guidance in pet care at home in the Parental Survey score

significantly higher on the Bonding Scale as well as show advanced perspective-taking abilities (Selman's interviews) than students who do not receive effective parental guidance in pet care on students' perspective-taking abilities.

Because the number of guardians who completed the survey was small and this could affect the interpretation of the statistical analysis of the data, I grouped parents into two groups based on their parents' guidance in pet care: "effective parental guidance" (e.g., "I will help him/her what s/he is supposed to do" "I will remind him/her what s/he is supposed to do") and "less effective/ no parental guidance" (e.g., "I do nothing" "I will just do it for him/her") based on both parents' survey response on their experiences of guiding their children in animal care at home.

An independent-sample *t* test was conducted to evaluate the hypothesis that students who receive effective parental guidance will score significantly higher on the Bonding Scale than students who receive less or no parental guidance on pet care at home. The test was significant, t (24.53) = 6.54, $p < .001$, indicating that students who received effective parental guidance showed stronger attachment with their pets (M = 28. 19, SD = 5.60, n = 36) than students who received less or no parental guidance on pet care at home (M = 14.28, SD = 8.55, n = 18).

Subsequently, Pearson's Chi-Square test (χ^2) was performed to investigate whether students who receive effective parental guidance show more advanced perspective-taking abilities (Selman's stages of perspective-taking theory) than

students who receive less effective or no parental guidance in pet care at home. The test was significant, χ^2 (1, n = 18) = 4.00, $p < .05$ (See Table 6).

As a follow up test, a chi-square (χ^2) test was performed to investigate whether students' gender, ethnicity, group, age group were significant factors influencing parental guidance (positive or negative) on pet care at home. Although students' age and gender were not significant factors on quality of parental guidance, groups (OHS Summer Camp vs. After School Program) and students' ethnicity were significant factors. Students from the OHS Summer Camp received significantly more positive parental guidance on animal care at home than students from the After School program, χ^2 (1, N= 54) = 13.44, $p < .001$ (Table 7). Additionally, students' ethnicity was significant, χ^2 (4, n = 42) = 13.74, $p < .01$. Students who are Caucasian were significantly more likely to receive positive parental guidance on animal care at home than students who are other ethnicities (Table 8).

Overall, these results suggest that students whose parents show effective guidance toward pet care are more likely to have more advanced skills of thinking and solving problem in flexible manner as they are learning animal care in effective guided participation (Vygotskian view). Specifically, students from the Summer Camp program were more likely to receive more positive parental guidance on animal care at home than students from the After School program. Such students also tend to have more positive relationships with their pets through effective interaction with pets shaped by, in part, more effective parental guidance. This may lead students to form a

stronger attachment with their pets and more opportunities in communicating with animals than students whose parents do not guide their children to take care of pets effectively at home. Such experiences might have promoted students' abilities of perspective-taking of others.

Table 6

Parental Guidance on Animal Care at Home

	Stage 2-3	Stage 4-5	Total
Effective parental guidance	1	8	9
Less/ no parental guidance	5	4	9
Total	6	12	18

Table 7

Parental Guidance on Animal Care at Home (By Group)

	Summer Camp	After School	Total
Effective parental guidance	23	13	36
Less/ no parental guidance	2	16	18
Total	25	29	54

Table 8

Parental Guidance on Animal Care at Home (By Ethnicity)

	Caucasian	African American	Hispanic/ Latino	Asian	Others	Total
Effective guidance	21	2	2	0	7	32
Less/ no guidance	2	3	0	2	3	10
Total	23	5	2	2	10	42

CHAPTER VII: DISCUSSION

Summary of Results

The current study contains a small number of participants, and therefore the statistical power of the data is small. For some statistical analyses, I combined the related variables into one variable to perform the statistical analyses to increase the power of the data. While this approach made it more difficult to interpret the intra-individual differences of the study participants, it resulted in relatively consistent findings from each analysis.

To investigate Hypotheses 1 and 2, linear regression analyses were employed to evaluate how well each independent variable (i.e., Attachment with Animals) predicted the dependent variables (i.e., Attitude toward animals, Knowledge of Animal Care, Animal Treatment, Empathy toward Humans, and Perspective Taking Abilities). For Hypothesis 1, I found that students who showed stronger attachment toward their pets displayed more humane attitudes toward animals and toward humans than students who reported weaker attachment toward their pets. Specifically, students' strength of attachment was significantly correlated with their knowledge of animal care. Secondly, students who showed stronger attachment with their pets had higher levels of social cognitive development on Selman's Dilemmas than students who showed weaker attachment with their pets (Hypothesis 2).

To investigate Hypothesis 1 and 2, linear regression analyses were employed. However, linear regression is a more general procedure that assesses how well one or more independent variables predict a dependent variable. Consequently, this analysis

reports “strength-of-relationship” statistics, which are useful for regression analyses with multiple predictors (Green & Salkind, 2002). For both Hypothesis 1 and 2, I found that all of the analyses indicated medium to large effects (i.e., .*r* = .36, .41, .73, .27, .74 respectively) of the independent variables (i.e., Attachment with Animals) on dependent variables (i.e., Attitude toward animals, Knowledge of Animal Care, Animal Treatment, Empathy toward Humans, and Perspective Taking Abilities). Specifically, students’ “Attachment with Animals” had a large effect in predicting students’ “Knowledge of Animal Care,” “Humane Treatment of Animals,” and “Perspective Taking Abilities;” whereas students’ “Attachment with Animals” had a medium effect in predicting “Attitude toward Animals” and “Empathy toward Humans.” “Attachment with Animals” indicated the largest effect size on students’ “Perspective Taking Abilities” (*r* = .74). These findings suggest that attachment with pets is a significant predictor of students’ humane attitudes toward animals and humans, humane treatment of animals, higher knowledge of animal care, and abilities to take different perspectives. In general, attachment with animals has a large effect on students’ abilities to take perspectives, knowledge of animal care, and humane treatment of animals.

For Hypothesis 3, significant correlations among variables were found (i.e., knowledge of animal care, attitudes toward animals, humane animal treatment, attachment with pets, empathy toward humans, perspective taking abilities). Although the correlations among students’ abilities to take perspective and their attitudes toward animals, humans, and knowledge of animals are not significant, overall findings

suggest that students who have more knowledge of animal care tend to treat animals or other humans in a more empathic way, and they tend to show stronger attachment with their pets. Specifically, correlations between "Humane Animal Treatment" and "Perspective Taking Abilities," "Humane Animal Treatment" and "Attachment with Animals," "Attachment with Animals" and "Perspective Taking Abilities" are strongly correlated (r = 74, .73, .74 respectively). Overall, these findings suggest that how students treat animals and how attached they are to their pets are the significant factors of their perspective taking abilities. In other words, students who treat animals more humanely tend to have stronger attachment with their pets as well as greater perspective taking abilities and higher empathy toward humans.

Finally, I investigated how the quality of parental guidance of pet care affects students' perspective-taking abilities (Hypothesis 4). I found that students whose parents show more effective guidance on pet care have more advanced skills with regard to thinking and flexible problem solving than students who received little or no guidance on pet care at home. Additionally, those students who receive more effective parental guidance also tend to have more positive relationships with their pets through effective interaction with their pets.

Like learning from a skilled tutor, learning in the group context is also a valuable way for children to learn a wide variety of interpersonal and social skills. Providing a humane education program in a classroom setting or in the presence of other peers can promote children to work together. This may be more effective to promote a child's cognitive development. By working with other peers, they have

more opportunities to explain their own ideas to others and to resolve conflicts. These experiences help children to examine their own ideas more closely and to become better at expressing them so that they can be understood. Cooperative learning is often more effective for children in promoting their cognitive development and social skills (e.g., Johnson & Johnson, 1989) as children are often more motivated when they are working through a problem with other peers. Guiding children to be kind to animals and to provide humane education in a group setting may be more effective to promote children's cognitive development than relying upon having a pet at home.

In sum, each hypothesis was supported and I found consistent findings with the past studies (i.e., Ascione, 1992, Maruyama, 2005) and theories I reviewed (i.e., Piaget, Vygotsky, and Selman). Overall, the findings suggest the importance of humane education programs (higher animal care knowledge) and effective parental guidance in pet care at home to promote students' positive interaction with animals, which is assumed to lead to the stronger attachment with animals. Having stronger attachment with animals and knowledge of animal care are expected to promote students' humane treatment of animals, humane attitudes toward animals, empathy toward humans, and perspective taking abilities.

Limitations

The current study contains a number of limitations.

Small number of participants

One of the significant challenges I faced was a small number of participants in the study due to the availability of the targeted study populations. I should point out

here that whether the differences observed are due to differences between experiences with pets or because of gender, age, or other factors could not be determined in these simple *t* test analyses.

I was interested in children between the age of 8 and 14 years old who have experiences with animals. However, because the access to students at the school setting was restricted, I had limited opportunities to recruit study participants outside of the school setting (i.e., the local humane society). Therefore, all participants were invited to the current study through the humane education programs (Summer Camp program and After School program) offered by the Oregon Humane Society. The small number of participants limits the statistical power of the analyses and the interpretation of the data. Future studies should include a larger number of participants with a broader range of ages and backgrounds (e.g., from different programs).

Sample bias

The current study reflects a sample bias due to the limited sample selected for this study. All students in the Summer Camp Program at the OHS voluntarily participated in the program. Such students may be likely to have more favorable attitudes toward animals in the first place. Also, participating in the Summer Camp program was not inexpensive. While information regarding socioeconomic status was not collected for this study, it is anticipated that the students who participated in the OHS Summer Camp would predominantly come from middle or upper socioeconomic status families. In contrast, all students from the After School Program participated in

the humane education program at the OHS as a part of their after school program offered by the I Have a Dream foundation, which offers the after school program for low-income communities: therefore the cost of the humane education program was not charged to students' families. Although the current study focused on how each student's strength of attachment with their pets and their attitudes toward animals and humans related to their perspective taking abilities instead of comparing the group differences of these attitudes and abilities, there may be pre-existing differences based on their social background that contribute to the study findings.

Limitations of methodology

Although I employed mixed methodology (survey and interview methods) to reduce the limitations of each methodology, several limitations for each methodology need to be considered. While the interview method gave us rich data quickly, students' responses might be influenced by presence of the researcher (i.e., social desirability). Also, students' responses might be influenced by their personality. For instance, if students are talkative and have outgoing personalities, they may respond more than students who are shy. This may give us wrong interpretations because students who responded more to the interviewer may have more key words that will be analyzed in the content analysis. Because girls at this developmental stage are frequently found to have greater verbal skills than boys (Howell, 2010), it seems unlikely that the results are due to gender differences in language development.

To minimize these concerns, research assistants and I coded which perspective taking stage (Selman) each student has reached based on how they solved the

conflicted situation in two hypothetical stories we asked in the interviews, instead of counting how many times each student said the key words that indicate their abilities of perspective taking. Our coding demonstrated an acceptable inter-rater reliability (Cohen's Kappa = .72). Answers that demonstrated the highest stage of the perspective taking abilities from each story were chosen and the average from two stories was calculated.

Employing survey methods in addition to the interview methods gave us more confidence in the findings. Surveys are usually easy and quick to collect valuable information in a cost-effective manner, and often help to reduce social desirability that may affect students' response (cf. the current study utilizes an identification number for each student). However, there are concerns for the validity and reliability of responses obtained by questions. For instance, answers in the survey provide only verbal descriptions of what students claim they would do or how they feel about something. Responses cannot always be taken as accurate descriptions of what the respondents actually feel about something.

Although all interviewers were trained and carefully followed the interview scripts and protocols, we used a different approach to conduct interviews with students in different groups. Students from the After School program participated in the face to face interviews with interviewers and all conversation was recorded to be transcribed. However, due to the time constrains, students from the Summer Camp participated in the telephone interviews at their convenient time outside of the summer camp program and interviewers took notes during the interviews. In the future study, it is

recommended to tape record the telephone interviews for more detailed transcription of the interviews.

Validity of parental survey

Although I collected information from students' parents by employing a "parental survey," this survey was developed just for the current study; therefore the survey has not been validated previously. Though the results suggest that students who received more effective parental guidance on pet cares showed more humane attitudes toward animals as well as higher perspective taking abilities, the study conclusion based on these findings needs to be interpreted with caution.

Threat of external factors

Another limitation of the current study is that I am not prepared to explain the effects of external factors, such as students' interactions with their friends, siblings, and teachers, which may have possible effects on their interactions with animals and their subsequent cognitive development and empathic attitudes toward animals and others. Also, I do not have information on whether pets are allowed in the student's residences. Some families may live in an apartment instead of a house, which may be a reason why families do not own pets at home. Information on why families own their pets may be needed to investigate factors that contribute in children's socio-emotional development.

Furthermore, it is uncertain whether there is an age, cultural, or social effect on children's socio-emotional development (i.e., perspective-taking abilities) in the current study due to the limited number of study participants. Employing larger

populations from a variety of age, cultural, and/or social groups in future research may help to answer this question. In addition, it is important to collect more in-depth data from students' schools and their teachers as well as students' family members, to investigate how school climate and interactions with teachers at school and family members at home are affecting students' development of perspective-taking abilities as one of the external factors.

Length of effectiveness

Finally, the effectiveness of the length and strength of interaction with animals in order to develop children's perspective-taking abilities, as well as the length of the effects, are uncertain. Because I collected the data only one time, there may be pre-existing differences that affected the study findings. Longitudinal studies that follow students exposed to multiple years of interaction with animals would be needed.

Implications

It is clear that animals can be extremely important in the lives of humans, especially for children. Today, the size of American families is increasingly small, and it is not unusual for married couples to not have any children. Many children grow up without any siblings or do not live with their grandparents. Instead, more households decide to have a pet, and naturally more children grow up with pets instead of a younger sibling (Melson, 2001). Despite evidence that pets are taking a significant part of children's lives, the area of developmental psychology has been slow to consider the importance of the effects of child-animal interactions on children's development (Melson, 2001, Ascione, 2005).

In the field of child development, studies are typically limited to children's relationships with other humans (Melson, 2003). Considering that many children grow up with their pets instead of siblings or other family members today, it is important to study how pets are affecting children's development. Moreover, interacting with animals is "predictably unpredictable," and can provide opportunities that facilitate learning and development in children (Melson, 2003). Melson further discussed that animal behavior can function as an engine of all learning, and that animal behavior facilitates of all kinds of learning: cognitive incongruity, moderate discrepancies from established schemata, and novel information. Piaget (1969) emphasized all of these as important for children's cognitive development. Companion animals can be powerful motivators for learning in children.

With efforts by many organizations, such as humane societies, more programs like humane education programs for children, as well as more studies of the human-animal interactions, have become available in the last decade. Humane education emphasizes teaching children to be kind, compassionate, and responsible to animals. Such positive behaviors toward animals are believed to be generalizable to humans (Finch, 1989). It is anticipated that efforts promoting children to treat animals with kindness would lead them to treat each other with greater respect and kindness.

As discussed previously, the American Humane Association endorsed a proposal that all states include humane education in their school systems' curricula in 1915, and the state of Oregon also enacted the law in 1947 (American Humane Association, 2010). In contrast to the increased number of available humane

education programs at schools, these humane education efforts are rarely funded at anything close to the levels provided for “substance abuse resistance” or more general anti-violence education and prevention programs (Ascione, 2005). In addition to many other challenges, the difficulty of evaluation of the program effects is one of the reasons why the development of such programs is slow. This study contributes to an increasing number of investigations that point to the importance of working with children and animals.

Ascione (2005) further outlines a number of challenges and limitations of the field. For instance, we do not have universally accepted humane education curricula and standard tests to assess changes in children’s knowledge about, and attitudes toward, animals. Secondly, the majority of studies have focused on children who are from the middle- and upper-classes, and little attention has been paid to the effects of such programs on children from less advantaged environments or children who fall in the category of “at risk.” Additionally, information specific to actual programs, such as documenting the extent and quality of the instruction, is rare for those who implement programs. Most importantly, there are few measurements of the effect of these programs on children’s actual behaviors toward animals today.

Although the current study did not measure participants’ behavioral changes, the study has multiple strengths over the past studies. For instance, one of the current study strengths is that the data is collected from students who are from various backgrounds. Although I need to be careful to make conclusions based on the statistical analyses of study data due to the small number of participants, I found

students' humane attitudes toward animals correlated with their empathy toward humans regardless of students' different backgrounds.

In addition, I found that students who have more knowledge about animal care treat animals and humans in a more empathic way, and this was also related to the stronger attachment with their pets. Students who have formed attachments with their pets strongly showed more humane attitudes toward animals and humans, as well as higher perspective taking abilities. Furthermore, I found that students who have more responsibility of their pet at home demonstrated more humane attitudes toward animals, as well as higher perspective taking abilities. These findings suggest the importance of humane education programs to promote students' knowledge of animal care and humane attitudes toward animals and humans. Findings and suggestions from the current study contribute to the current information in the field.

In addition to providing humane education programs for children, there is also a need of providing programs or instruction to their parents or guardians on how to guide and promote their children's positive interactions with animals effectively. One of the most important findings of the study was that adult guidance on pet care at home is important for students' attitudes toward animals and humans, as well as their abilities to take the perspective of others. Interactions with teachers and/or older family members can provide a context for guided participation in the learning activities of the child, and teachers or older family members can assist a younger child within their "zone of proximal development." Specifically, Vygotsky's (1978) concept of 'apprenticeship' is meaningful in this context. Apprenticeship is explained

as learning that takes place during natural daily activities, and it is built upon interactions between older and younger members of a cultural group where the older member scaffolds the abilities of the younger member in shared tasks and activities (Klein, Feldman, & Zarur, 2002). The findings show that the older family member's or teacher's effective teaching strategies may be related to the child's opportunities to learn from them in the context, which is captured in the Vygotskian concept of apprenticeship (Rogoff, 1990).

In addition to providing humane education programs to children, there is also a need to create programs for guardians to educate them on how to guide their child to interact with pets effectively at home. Children learn and develop behaviors and ideas related to nurturing others through interacting with animals, and effective parental guidance on animal care can promote such learning behaviors even more. With proper guidance of animal care, children develop their knowledge of animal care and positive interactions with animals. Such knowledge and skills to interact with animals positively will lead them to have good relationships with their pets, which will further help to develop strong attachment with their pets. Thus, it is important for guardians to have knowledge of how to guide their children to be empathic toward animals and other humans.

As I previously discussed, many youths at the local youth correctional facility whom I communicated with had at least one pet (most of them reported dogs as pets) when they were growing up. If these youths had effective guidance from their parents or any adults in their lives, I may have met with them at different places and

opportunities than at the correctional facility. At the same time, I would like to mention that these youths impressed me with their great effort to train abandoned dogs to make them more adoptable. I saw strong connections between these youths and dogs, and watching their smiles and words toward their dogs gave me an unexplainable warm feeling in my heart. A zero recidivism rate among youths in this program has been reported to date (Project Pooch, 2005) and this is another convincing fact that animals can be effective for everyone regardless of their background, such as age, ethnicity, or gender. Prevention and/or intervention programs with animals may be a most useful and cost effective way to prevent future crimes in our society.

As Melson and Fogel (1996) addressed, animals provide opportunities for gender-neutral nurturance learning and practice for children. Interacting with animals may be more important for boys to promote their nurturance behaviors and attitudes. Levinson (1969) described the relationship between children and companion animals as having a quality of unconditional acceptance, and pointed out the importance of an animal's acceptance of children "as is" without feedback or criticism. Children often perceive their companion animal as their most understanding listener. Beck and Katcher (1996) suggested that pets exhibit many of the characteristics of the trusting mother. Most pets are unconditional in their affection, devoting, attentive, loyal, and non-verbal. These studies suggest that there is merit in the proposition that animals may contribute to a child's socialization and attachment. Animals appear to be a key factor that can enhance a child's socioemotional and cognitive development.

As I found in the current study, students' attachment with pets was significantly correlated with their humane attitudes toward animals and humans, as well as their abilities of taking the perspective of others. Having the ability of taking the perspective of others will alternately help children to have high interpersonal skills, which is a key to having a more successful life in society. If people at any age have skills of taking the perspective of others, crimes in the society may decline significantly. Animals can be an extremely useful tool to promote such perspective taking abilities in children. Promoting young children's well-being and promoting their abilities to take perspective of others could serve as prevention strategies of future crimes committed by youths, as well as an intervention approach for people who lack the abilities of taking perspective of others, which is strongly related to one's empathy.

Lastly, in addition to humans' positive interaction with animals, attention to children's cruelty behaviors toward animals has gained significant attention in recent years (Ascione & Maruyama, 2010). High correlations between adult criminals and histories of animal abuse have been consistently reported (e.g., Felthous &Kellert, 1987, Verlinden, 2000). Teaching children to be kind to animals at their early age may also prevent the escalation of their cruel behaviors toward animals, which may help to reduce their violent behaviors toward humans in the future.

Furthermore, it is recommended that future studies should investigate the multidimensionality of psychological effects of animals on humans. Past studies tended to focus either on positive outcomes of animals (e.g., empathy) or on negative

outcomes (animal cruelty). It is important to examine a wide range of trajectories of children's development and its outcomes, both positive and negative, through interacting with animals.

Animals offer us love, trust, happiness, joy, and connections that we are sometimes missing in our lives. By addressing how valuable animals are in children's development, this will help us understand how we can raise our children and promote happiness in the family and the society.

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Appendix A

Background Analyses

I investigated whether students' backgrounds (i.e., Age, Gender, Group, and Pet Ownerships) were significantly related to students' attitudes toward animals and humans as well as their abilities of perspective taking (See Table 9, 10, 11, 12, 13, and 14).

Table 9

Means and Standard Deviations of the Students by Age

	Age 10 or younger	Age 11 or older
Knowledge of Animal Care ("What should you do?" Survey)	19.24 (1.67) *n* = 41	19.74 (1.15) *n* = 19
Humane attitudes toward animals ("Firefighter Survey")	2.00 (1.03) *n* = 35	2.40 (.83) *n* = 15
Humane animal treatment ("Animal Treatment Survey")	13.41 (7.21) *n* = 41	15.42 (6.77) *n* = 19
Attachment with Animals ("Bonding Survey")	23.20 (10.10) *n* = 41	24.92 (8.71) *n* = 19
Empathy toward humans* ("Empathy Survey")	42.08 (10.12) *n* = 43	47.72 (6.58) *n* = 18
Perspective taking abilities ("Selman's interviews)	3.33 (.55) *n* = 24	3.13 (.35) *n* = 8

* $p < .05$

Table 10

Means and Standard Deviations of the Students by Gender

	Male	Female
Knowledge of Animal Care ("What should you do?" Survey)	18.72 (2.51) *n* = 19	19.71 (.57) *n* = 42
Humane attitudes toward animals ("Firefighter Survey")	1.79 (2.25) *n* = 14	2.25 (.97) *n* = 36
Humane animal treatment* ("Animal Treatment Survey")	11.11 (7.67) *n* = 19	15.41 (6.44) *n* = 41
Attachment with Animals* ("Bonding Survey")	19.35 (10.76) *n* = 20	25.50 (8.69) *n* = 41
Empathy toward humans* ("Empathy Survey")	39.61 (9.06) *n* = 19	45.62 (9.23) *n* = 42
Perspective taking abilities ("Selman's interviews)	3.33 (.65) *n* = 12	3.25 (.41) *n* = 20

*$p < .05$

Table 11

Means and Standard Deviations of the Students by Group

	OHS Camp	After School
Knowledge of Animal Care* ("What should you do?" Survey)	19.90 (.31) *n* = 30	18.92 (2.02) *n* = 31
Humane attitudes toward animals** ("Firefighter Survey")	2.54 (.72) *n* = 24	1.73 (1.04) *n* = 26
Humane animal treatment*** ("Animal Treatment Survey")	18.01 (3.34) *n* = 30	10.09 (7.64) *n* = 30
Attachment with Animals*** ("Bonding Survey")	28.60 (6.75) *n* = 29	18.84 (9.84) *n* = 32
Empathy toward humans** ("Empathy Survey")	47.17 (8.81) *n* = 30	40.43 (9.12) *n* = 31
Perspective taking abilities* ("Selman's interviews)	3.08 (.19) *n* = 12	3.40 (.60) *n* = 20

*$p < .05$, ** $p < .01$, *** $p < .001$

Table 12

Means and Standard Deviations of the Students by Students' Pet Ownerships

	Have/ had Pets	No pets
Knowledge of Animal Care ("What should you do?" Survey)	19.58 (1.20) *n* = 51	18.47 (2.51) *n* = 10
Humane attitudes toward animals ("Firefighter Survey")	2.20 (.98) *n* = 41	1.78 (.97) *n* = 9
Humane animal treatment ("Animal Treatment Survey")	14.99 (6.06) *n* = 50	9.35 (9.96) *n* = 10
Attachment with Animals*** ("Bonding Survey")	25.24 (8.83) *n* = 51	12.89 (8.89) *n* = 9
Empathy toward humans ("Empathy Survey")	44.13 (10.08) *n* = 50	42.00 (6.52) *n* = 11
Perspective taking abilities ("Selman's interviews)	3.30 (.52) *n* = 27	3.13 (.48) *n* = 4

*** $p < .001$

Table 13

Means and Standard Deviations of the Students by Type of Pets

	Have/had dogs or cats	Not have/ had dogs or cats
Knowledge of Animal Care ("What should you do?" Survey)	19.73 (.52) *n* = 30	19.28 (1.56) *n* = 10
Humane attitudes toward animals*** ("Firefighter Survey")	2.76 (.73) *n* = 23	1.25 (1.04) *n* = 8
Humane animal treatment* ("Animal Treatment Survey")	17.33 (3.19) *n* = 30	9.51 (8.00) *n* = 9
Attachment with Animals* ("Bonding Survey")	25.51 (6.13) *n* = 30	18.80 (9.76) *n* = 10
Empathy toward humans (Empathy Survey")	45.11 (10.12) *n* = 30	46.00 (8.84) *n* = 8
Perspective taking abilities ("Selman's interviews)	3.78 (.39) *n* = 7	3.44 (.68) *n* = 9

*$p < .05$, *** $p < .001$

Table 14

Means and Standard Deviations of the Students by Responsibility

	Have responsibility	Do not have responsibility
Knowledge of Animal Care** ("What should you do?" Survey)	19.78 (.47) *n* = 41	18.47 (2.52) *n* = 18
Humane attitudes toward animals* ("Firefighter Survey")	2.34 (.90) *n* = 32	1.73 (1.10) *n* = 15
Humane animal treatment*** ("Animal Treatment Survey")	16.61 (4.41) *n* = 40	8.05 (8.61) *n* = 18
Attachment with Animals*** ("Bonding Survey")	28.82 (5.40) *n* = 42	11.68 (6.17) *n* = 19
Empathy toward humans (Empathy Survey")	44.86 (9.56) *n* = 41	41.07 (9.38) *n* = 16
Perspective taking abilities** ("Selman's interviews)	3.73 (.41) *n* = 11	3.00 (.56) *n* = 9

* $p < .05$, ** $p < .01$, *** $p < .001$

Appendix B

Informed Consent Form

July 6, 2009

Dear Parents,

You and your child are invited to participate in a research project being conducted by Mika Maruyama, M.S., a graduate student at Portland State University, and Dalton Miller-Jones, Ph.D., a faculty member in the Department of Psychology, Portland State University. This letter is to ask for your permission to allow your child to participate in the evaluation of our educational program.

The study looks at children's interactions with animals (pets). Some experts say that interacting with animals can be very helpful for children's emotional well-being and may help them develop the ability to recognize how someone else might feel. Humane education programs, like the one your child is involve with through the Oregon Humane society and the *I Have a Dream* Foundation, involves teaching children to interact with animals in a way that is both safe and caring. This type of program may also help children learn to be more understanding and kind to other people. Using a set of questionnaires/surveys, our study examines whether children develop more empathy, respect, kindness, and animal safety through humane education. Also, we are interested in their experiences with animals at home. Finally we would like to do a brief phone interview with your child to ask them to tell us how they think some social problems should be solved.

There is no right or wrong answers in our surveys and your child's name will be removed from all the surveys.

You can choose not to allow your child to participate in either the survey and/or the phone interview. Even if we have permission from you, your child is free to decide for him/herself if he/she no longer wants to continue participating in the study. As a thank you gift for the research participation, we would like to offer your child $10 worth of incentives (i.e., book store gift certificate, admission tickets to the Oregon Zoo, $10 donation to the Oregon Humane Society).

Thank you for taking the time to read this. If you have any concerns or questions, please feel free to call us at the phone numbers listed below, or the Office of Human Subjects Research Review Committee at Portland State University, (503) 725-3423, 600 Unitus Building, 2121 SW 4th Ave, Portland, OR 97201

Mika Maruyama at Department of Psychology, PO box 751 Portland OR 97207, 503-725-3923.

In this packet, we enclosed the following forms:

1. Consent forms
    a. For your child
    b. For parent/ child's guardian
2. Survey from your child
    a. Background Information Survey for child

        Your child will be asked to complete a Background Information survey, which will take approximately 15 minutes.

    b. Billy (or Sally) and the Fire Fighter Survey

        In this questionnaire, children are told that the house of a boy (Billy) or a girl (Sally) who is about the same age as they are is now on fire. The fire fighter has told the boy or the girl that his/ her house would be totally burned down, and he or she could save only three things from his house before house would be totally lost. Students are given a list of ten objects in house (i.e., cats, dogs, computer, cell phone) and have to choose three of them that they think the boy or the girl in this story should save.

    c. Pet Ownership Survey

        In addition to understanding how your child thinks or feels about animals and their friends, we are interested in learning your child's experiences with animals at home and how they interact with their family members at home. There are 13 questions and it should take about 10 minutes.

    d. What Should You Do? Survey

        The questionnaire consists of 10 "true" or "False" questions, including children's treatment of animals. Samples questions are: 1) "If you see a dog you don't know, you should run up to it and say hello"; 2) "If a dog is on a leash, ask permission to pet someone's dog." It should take about 5-10 minutes to do.

    e. What you do with your pet Questionnaire

        This questionnaire was developed to measure children's behavior toward nonhuman animals. It contains 13 questions and takes about 5-10 minutes to do.

    f. Children's Empathy Questionnaire

        These questions assess children's feelings (empathy) toward humans and animals. There are 22 items with yes-no response like: : 1) "It makes me sad to see a girl who can't find anyone to play with"; 2) I really like to watch people open presents, even when I don't get a present myself." It takes about 20 minutes to do.

3. Survey from parent/ guardian

   In the "Parental Survey," we will ask questions about your child and how you interact with your child at home. As discussed previously, there is no right or wrong answers in our surveys, and no one but the principle researcher (Mika Maruyama) will access to the original surveys. Maruyama will separate your name and your survey as soon as she receives a survey from you and no one but she can match your name and your surveys. Neither your name nor your child's name will appear in any reports of this research.

4. Envelope (pre-stamped) to return all forms (consent forms from parent and child) and surveys (from parent and child) to us

.

Your child will fill out a brief written questionnaire on their attitudes towards animals, experiences with animals, some basic questions (like do they have any pets in their house, etc.) and some questions about how they perceive other people's feelings (empathy).

You have a right to review a copy of the surveys, questionnaires, checklist, etc. in this packet and being given to your child.

Participation in this project is voluntary and involves no unusual risks to you or your child. You may take back your permission at any time with no negative consequences. Your child can refuse to participate or withdraw from the project at any time with no negative consequences (e.g. right to receive services, etc.).

3. Interviews

We would like to interview your child (by phone with you present) or (face to face with their classroom teachers present). In the interview we will describe situations or stories and ask your child what they think the person in the story ought to do. For example, one story tells about a young girl who climbs a tree and has a fall from a low branch. While she is not injured, her father makes her promise not to climb trees anymore. She agrees but then later sees a small frightened kitten stuck in another tree. What should she do? All of the children's responses will be kept strictly confidential and no name will be place on their statements. Trained research assistants in the psychology department at Portland State University will call you at a time you suggest (you can let us know when a good time would be for both you and your child). Each interview will take approximately 15 minutes, and again, there is no right or wrong answers. Again, neither your name nor your child's name will appear in any reports of this research.

At the conclusion of the research study, we will send you a report of our findings that you can share with your child.

If you agree to let your child participate, please indicate this decision on the following page and send it back with enclosed envelope.

Your signature does not waive any legal claims, rights or remedies. Please keep second copy for your record.

Sincerely,

Mika Maruyama, M.S.
Portland State University, Department of Psychology

Documentation of Parental Consent (For child's participation)

Please indicate below whether you consent to your child participating in this study:

I give my permission for my child to participate in this study, including allowing my child to take the written questionnaire and/or interviews described above.

❑Yes ❑No

_____
(Parent/Guardian printed name)

_____ _____
(Parent/Guardian signature) Date

Children must also agree to participate:

_____ has explained this research to me, and I would like to participate.
(name person)

_____
(Child's printed name)

_____ _____
(Child's signature) Date

Documentation of Consent (For guardian's participation)

Please indicate below (Circle one) whether you agree to participate in this study:

Yes, I agree to participate in the study

_____ _____
(Parent/Guardian printed name) (Parent/Guardian signature) Date

No, I do not agree to participate in the study

_____ _____
(Parent/Guardian printed name) (Parent/Guardian signature) Date

Availability of the interviews[2]

Can we call you to interview (15-20 minutes) with your child? In the interview we will describe two situations or stories and ask your child what they think the person ought to do. For example, one story tells about a young girl who climbs a tree and falls from a low branch. While she is not injured, her father makes her promise not to climb trees anymore. She agrees but then later sees a small frightened kitten stuck in another tree. What should she do? All of the children's responses will be kept strictly confidential and no name will be place on their statements.

❑ Yes, my child can participate in the telephone interview session

Phone Number to call for the Interview_____

Option 1: _____ _____
(Available dates for interviews) (Available hours)

Option 2: _____ _____
(Available dates for interviews) (Available hours)

Option 3: _____ _____
(Available dates for interviews) (Available hours)

❑ No, my child is not interested in participating in the telephone interview session.

[2] I do not collect from students who are in the after school program

(Spanish version of informed consent form)
6 de Julio del 2009

Estimados Padres,

Usted y su hijo/a están invitados a participar en un proyecto de investigación dirigido por Mika Maruyama, M.S. y el doctor Dalton Miller-Jones. Esta carta es para pedir su permiso para permitir a su hijo/a a participar en la evaluación de nuestro programa educativo.

El estudio está interesado en las interacciones de los niños/as con los animales. Algunos expertos dicen que las interaccionar con animales pueden ser muy beneficiosos para el bienestar del niño/a y puede ayudar a desarrollar la habilidad de reconocer cómo una persona puede sentirse. La educación humanitaria, como el programa que asiste su hijo/a por la Sociedad de Oregon Humanitario y la Fundación *I Have a Dream (Tengo un Sueño)*, implica enseñar a los niños interaccionar con animales de manera segura y cariñosa. Este tipo de programa puede también ayudar a los niños/as aprender más a comprender y ser más amable a otras personas. Utilizando una serie de cuestionarios/encuestas, nuestro estudio examina si los niños/as pueden desarrollar más empatía, respeto, amabilidad, y seguridad con los animales a través de la educación humanitaria. También estamos interesados de sus interacciones con animales en casa. Finalmente, nos gustaría hacer una entrevista breve por teléfono con su hijo/a y preguntarle cómo piensan que unos problemas sociales deben ser solucionados.

No hay una respuesta correcta o incorrecta en nuestras encuestas, y el nombre de su hijo/a será retirado de todas las encuestas.

Usted puede el derecho de no permitir a su hijo/a a participar en la encuesta y/o la entrevista por teléfono. Aunque tengamos permiso de usted, su hijo/a puede decidir que no quiere participar o continuar en el estudio.

Gracias por tomar su tiempo en leer esta forma. Si usted tiene alguna preocupación o pregunta, por favor llámenos a los teléfonos que aparecen abajo, o a al Office of Human Subjects Research Review Committee de Portland State University, (503) 725-3423, 600 Unitus Building, 2121 SW 4th Ave, Portland, OR 97201

Mika Maruyama del Departamento de Psicología, PO box 751 Portland OR 97207, 503-725-3923.

Este paquete incluye las siguientes formas:

5. Forma de Consentimiento
    a. Para su hijo/a
    b. Para los padres/guardianes

6. Encuesta para su hijo/a
    a. Información demográfica del hijo/a

Se le pedirá a su hijo/a que complete la encuesta de información demográfica, que demorará unos 15 minutos aproximadamente.

b. Billy (o Sally) y la Encuesta del Bombero
En esta encuesta, se les dirán a los niños/as que la casa del niño (Billy) o la niña que son de la misma edad se está quemando ahora por un fuego. El bombero le ha dicho al niño o niña será completamente quemada, y que él o ella sólo puede salvar tres cosas de su casa antes de que todo se pierda con el fuego. Los estudiantes tendrán una lista de diez cosas (como, por ejemplo, gatos, perros, computadora, teléfono celular) y tienen que elegir tres cosas que el niño o la niña en la historia debería salvar.

c. Encuesta para Dueños de Animales
Además de estar interesados en cómo piensa o siente su hijo/a acerca de los animales y sus amigos, estamos interesados en aprender las experiencias de su hijo/a con los animales en casa y cómo interaccionan con los miembros de su familia en casa. Hay 13 preguntas y demorará unos 10 minutos.

d. Encuesta de ¿Qué debes hacer?
La encuesta consiste de 10 preguntas de “verdadero” y “falso,”incluyendo el trato de su hijo/a de animales. Ejemplos de preguntas son: 1) “Si ves un perro que no conoces, debes correr hacia ello y decir “hola”; 2) “Si un perro está amarrado, hay que pedir permiso al dueño para acariciar al perro.” Demorará unos 5-10 minutos en completar.

e. Encuesta de “Qué hacer con su Animal”
Esta encuesta fue creada para medir la conducta de los niños/as hacia animales no-humanos. Contiene 13 preguntas y demorará unos 5-10 minutes en completar.

f. Encuesta de Empatía de los Niños
Estas preguntas asesoran los sentimientos de los niños/as hacia humanas y animales. Hay 22 preguntas con forma de respuesta de sí-no como: 1) “Me pongo triste cuando veo una niña que no encuentra a nadie con quien jugar”; 2) Me gusta ver a las personas abrir regalos, incluso cuando yo no recibo un regalo.” Demorará unos 20 minutos en completar.

7. Encuesta para Padres/Guardianes
En la encuesta de padres/guardianas, preguntaremos sobre su hijo/a y cómo interacciona usted con su hijo/a en casa. Como hemos mencionado antes, no hay ninguna respuesta correcta o incorrecta en nuestras encuestas, y nadie salvo la investigadora principal (Mika Maruyama) tendrá acceso a las

encuestas originales. Maruyama separará su nombre y su encuesta tan pronto como reciba la encuesta de usted y nadie salvo ella podrá emparejar su nombre y su encuesta. Su nombre y el de su hijo/a no aparecerán en los reportes de la investigación. Usted tiene derecho de revisar una copia de cualquier encuesta, lista, etc. que se administrará a su hijo/a.

8. El sobre (con sello incluido) para devolver las formas (formas de consentimiento de los padres e hijo/a) y encuestas (de padres e hijo/a) está incluido.

Su hijo/a completará un cuestionario breve de sus actitudes hacia animales, experiencias con animales, algunas preguntas básicas (como si tienen animales en casa, etc.) y algunas preguntas sobre cómo perciben los sentimientos de otras personas (empatía).

Su participación en este proyecto es voluntaria y no conlleva ningún riesgo inusual para usted o su hijo/a. Usted también puede retirar su permiso en cualquier momento sin ninguna consecuencia negativa. Su hijo/a puede negarse a participar o retirarse de este proyecto en cualquier momento sin ninguna consecuencia negativa (por ejemplo, el derecho de recibir servicios, etc.).

3. Entrevistas

Nos gustaría entrevistar a su hijo/a por teléfono con usted presente. En la entrevista describiremos situaciones o historias y pediremos a su hijo/a que opinan que deba hacer la persona de la historia. Por ejemplo, una historia es de una niña joven que sube un árbol y se cae de una rama baja. Mientas no se lastima, su padre le hace prometer que nunca más va a subir árboles. Ella asiente pero luego ve un gatito asustado atrapado en un árbol. ¿Qué debe hacer? Todas las respuestas de los niños/as serán mantenidas confidencialmente y ningún nombre será puesto en sus respuestas. Asistentes de investigación entrenados en el departamento de psicología de Portland State University le llamarán a la hora que usted nos diga (usted nos puede decir cuando es un hora buena para llamar para usted y su hijo/a) Cada entrevista demorará unos 15 minutos, y repetimos, no hay ninguna respuesta correcta o incorrecta. Repetimos, su nombre y el de su hijo/a no aparecerán en ningún reporte de esta investigación.

At the conclusion of the research study, we will send you a report of our findings that you can share with your child.

Si usted permite a su hijo/a participar, por favor indique esta decisión en la siguiente página y envié la forma en el sobre incluido.

Su firma no renuncia ningún reclamo legal, derechos, o remedies. Por favor, guarde la segunda copia para sus records.

Sinceramente,

Mika Maruyama, M.S.
Portland State University, Departamento de Psicología

Documentación para el Consentimiento de los Padres (Para la participación del hijo/a)

Por favor indica abajo si usted consiente que su hijo/a participe en este estudio:

Doy mi permiso para que mi hijo/a participe en este estudio, que incluye el permiso de tomar la encuesta escrita y/o las entrevistas descritas arriba.

❑Sí ❑No

_____
(Nombre escrito del Padre/Guardián)

_____ _____
(Firma del Padre/Guardián) Fecha

Los niños/as también deben consentir en participar:

_____ ha explicado esta investigación a mí, y me gustaría participar.
(Nombre de la persona)

_____
(Nombre escrito del niño/a)

_____ _____
(Firma del niño/a) Fecha

Documentación de Consentimiento (Para la participación del padre/guardián)

Por favor indique abajo (Haz un circulo en una opción) sí usted consiente en participar en este estudio:

Sí, doy mi consentimiento en participar en este estudio

_____ _____
(Nombre escrito del Padre/Guardián) (Firma de Padre/Guardián) Fecha

No, no doy mi consentimiento en participar en este estudio

_____ _____
(Nombre escrito del Padre/Guardián) (Firma de Padre/Guardián) Fecha

Disponibilidad para las Entrevistas

Podemos llamar a usted para entrevistar (15-20 minutos) con su hijo/a? En la entrevista, describiremos dos situaciones o historias y preguntaremos a su hijo/a que piensan ellos que debería hacer la persona. Por ejemplo, una historia trata de un niña joven que sube un árbol y cae desde una rama baja. Mientras no se lastimó, su padre le hizo prometer que nunca más subirá árboles. Ella dice que sí, pero luego ve un gatito que tiene mucho miedo atrapado en un árbol. ¿Qué debería hacer la niña? Todas las respuestas de los niños/as se mantendrán confidenciales y ningún nombre será escrito en los papeles.

❑ Sí, mi hijo/a puede participar en la sesión de entrevista por teléfono.

Número de teléfono para llamar para la entrevista_____

Opción 1: _____ _____
(Días disponibles para la entrevista) (Horas Disponibles)

Opción 2: _____ _____
(Días disponibles para la entrevista) (Horas Disponibles)

Opción 3: _____ _____
(Días disponibles para la entrevista) (Horas Disponibles)

❑ No, mi hijo/a no está interesado/a en participar en la sesión de entrevista por teléfono.

Appendix C

Selman's Stages of Perspective-Taking Theory Script
(Telephone interviews)

Researcher: "Good afternoon. My name is XXX and I'm a research assistant at Portland State University. I am calling for your child to conduct a research interview that you agreed to participate in. Is this a good time to talk with your child?

Parent answers

Researcher: Do you have any questions regarding phone interviews before I talk with your child?"

Parent answers

Child answers phone

Researcher: We are now studying about how students at your age think about other people, and we would like to ask your child a few questions.

Researcher: "Ok. Now, I'm going to read you 2 stories about someone about your age. After I read a story, I will ask you a few questions about how you think about the story. There are no right or wrong answers in the questions, so you do not have to worry about the questions, but we would like to have your honest opinions. For study purposes, we would like to record our conversations onto audio cassette tapes, but your opinions will be kept private and no one except for myself will be able to match your answers and your name. Before I start reading the stories, do you have any questions?"

Child answers

Researcher: "Ok, I will read you the first story now."

"Holly, an athletic eight-year-old girl, is climbing a tree near her house with a group of her friends when she falls from a low branch. Although she is not hurt, her father, just returning home from work, sees her fall and asks her to promise not to climb trees anymore. Holly agrees to do as her father wishes. However, not long afterwards, as she walks to a friend's house with some other neighborhood kids, she sees a very young and obviously distressed kitten perched high in the branches of another tree. And none of the other kids with her is

capable of climbing up into the tree to get the kitten down, and it seems there is no other way to rescue it. What should she do?"

Child answers

Researcher: Is there anything else about the story you want to add?

Child answers

Researcher: What do you think will happen if Holly does that (climb the tree/ did not climb the tree)?

Child answers

Researcher: What do you think her father will say if Holly does that?

Child answers

Researcher: Is there anything else about the story you want to add?

Child answers

Researcher: "Ok. Now I will read one more story to you and I will ask you one more questions at the end of the story. Are you ready?"

"Kathy is ten years old and has been friends with Becky for a long, long time. In fact, Kathy considers Becky to be her closest friend, and she's agreed to go over to Becky's house o Saturday for the afternoon. But Jeanette, a new girl in town, has offered Kathy a "once in a life-time" opportunity to see a show that Kathy has been eagerly trying to see- on that very same afternoon. Kathy knows that Becky, who's a bit shy, is depending on her to play with. She wanted to go over to Becky's house, and she's afraid she'll hurt her best friend's feelings if she doesn't, but she really wants to see the show, and she's not sure what she should do or how she can explain her decision to either Becky or Jeanette."

The child answers (interviewer takes notes)

Interviewer: 1) Is there anything else about the story you want to add?
2) What do you think will happen if Kathy does that?
3) What do you think her father will say if Kathy does that?

Researcher: "Thank you very much for your time and answering my questions. Do you have any questions?

Child answers

Researcher: If you have any questions or want to talk about this interview, your parent/ guardian have contact information of mine. So, please feel free to contact with me or other researchers if you have any questions. Again, thank you very much."

Appendix D

Selman's Stages of Perspective-Taking Theory Script
(interviews at school: face to face interviews))

Name of the Student: XXXXX
Name of the Interviewer (Researcher): XXXXX
Date: Nov 10, 2009
Time: 3:00pm to 3:25pm

Researcher: "Good afternoon. My name is XXX and I'm a research assistant at Portland State University. We are now studying about how students at your age think about other people, and we would like to ask you a few questions today. Do you have any questions regarding interviews before we start?"

Student: No.

Researcher: "Ok. Now, I'm going to read you 2 stories about someone about your age. After I read a story, I will ask you a few questions how you think about the story. There is no right or wrong answers in the questions, so you do not have to worry about questions, but we would like to have your honest opinions. For study purpose, we would like to record our conversations with this audio recorder, but your opinions will be kept as secret and no one expect myself won't be able to match your answer and your name. Before I start reading stories, do you have any questions?"

Student: No. I'm ready.

Researcher: "Ok, I will read you the first story now."

> *"Holly, an athletic eight-year-old girl, is climbing a tree near her house with a group of her friends when she falls from a low branch. Although she is not hurt, her father, just returning home from work, sees her fall and asks her to promise not to climb trees anymore. Holly agrees to do as her father wishes. However, not long afterwards, as she walks to a friend's house with some other neighborhood kids, she sees a very young and obviously distressed kitten perched high in the branches of another tree. And none of the other kids with her is capable of climbing up into the tree to get the kitten down, and it seems there is no other way to rescue it. What should she do?"*

Student: Well, I think she should climb the tree to rescue the kitty even though she promised her father she would not climb the tree any more. Otherwise, the kitty may die falling down from the tree. I think she should save kitty.

Researcher: Is there anything else about the story you want to add?

Student: No.

Researcher: What do you think will happen if Holly does that (climb the tree/ did not climb the tree)?
Student: I think her friend would appreciate her saving his kitty, and the kitty is also happy being saved.

Researcher: What do you think her father will say if Holly does that?

Student: I think her father understands why she has to climb the tree. Holly will explain her father that there was no one who could help the cat.

Researcher: Is there anything else about the story you want to add?

Student: No.

Researcher: "Ok. Now I will read one more story to you and I will ask you one more questions at the end of the story. Are you ready?"

Student: Yes.

Researcher;

"Kathy is ten years old and has been friends with Becky for a long, long time. In fact, Kathy considers Becky to be her closest friend, and she's agreed to go over to Becky's house o Saturday for the afternoon. But Jeanette, a new girl in town, has offered Kathy a "once in a life-time" opportunity to see a show that Kathy has been eagerly trying to see- on that very same afternoon.
Kathy knows that Becky, who's a bit shy, is depending on her to play with. She wanted to go over to Becky's house, and she's afraid she'll hurt her best friend's feelings if she doesn't, but she really wants to see the show, and she's not sure what she should do or how she can explain her decision to either Becky or Jeanette."

Student answers (interviewer takes notes)
Interviewer: 1) Is there anything else about the story you want to add?
2) What do you think will happen if Kathy does that?
3) What do you think her father will say if Holly does that?

Researcher: “Thank you very much for your time and answering my questions. Do you have any questions? If you have any questions or want to talk about this interview, your parent/ guardian have contact information of mine. So, please feel free to contact with me or other researchers if you have any questions. Again, thank you very much.”

Appendix E

Background Information Survey[3]

Name:

_____ _____

First Name **Last Name**

Are you **How old are you?**

□ BOY □ Girl AGE (_____)

When is your birthday?

_____ _____

Month **Year**

Have you participated in the summer camp program offered by the Oregon Humane Society before?

□ Yes □ No

How many times? (times)

Do you participate in the after school program offered by "I Have a Dream" foundation?

□ Yes □ No

If you check "Yes", and if you have already taken this survey before, you do not have to fill out the rest of the survey. However, you still have an option to participate in the interview study.

[3] Questions 3 to 10 are from "Companion Animal Bonding Scale" developed by Poresky et al (1987)

1. Check the people whom you live with.

☐Father	☐Grand father
☐Mother	☐Grand mother
☐Older brother	☐Uncle
☐Younger brother	☐Aunt
☐Older sister	☐Friends
☐Younger sister	☐Some one else (Who?___)

2. How often do/ did you play with your pet(s)? For example, play ball with a dog or chase a wand toy with a cat.

☐Everyday for at least 10 minutes

☐Often (4-5 days a week)

☐Sometimes (2-3 days a week)

☐I hardly ever play with my pet

☐I never had a pet

3. How often are you responsible for your pet's care?

☐Always (Everyday)

☐Generally (4-5 days a week)

☐Often (2-3 days a week)

☐Rarely

☐Never

☐Someone else takes care of my pet

4. How often do you clean up after your pet(s)?

☐Always (Everyday)

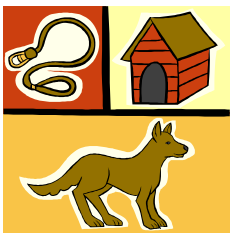
☐Generally (4-5 days a week)

☐Often (2-3 days a week)

☐Rarely

☐Never

☐Someone else takes care of my pet



5. How often do you hold, stroke, or pet your pet(s)?

☐Always (Everyday)

☐Generally (4-5 days a week)

☐Often (2-3 days a week)

☐Rarely

☐Never

6. How often do your pet(s) sleep in your room?

☐Always (Everyday)

☐Generally (4-5 days a week)

☐Often (2-3 days a week)

☐Rarely

☐Never

7. How often do you feel your pet(s) is responsive to you?

☐Always (Everyday)

☐Generally (4-5 days a week)

☐Often (2-3 days a week)

☐Rarely

☐Never

8. How often do you feel that you had close relationships with your pet(s)?

☐Always (Everyday)

☐Generally (4-5 days a week)

☐Often (2-3 days a week)

☐Rarely

☐Never

9. How often do you travel with your pet(s)?

☐Always (Everyday)

☐Generally (4-5 days a week)

☐Often (2-3 days a week)

☐Rarely

☐Never

10. How often do you sleep near your pet(s)?

☐Always (Everyday)

☐Generally (4-5 days a week)

☐Often (2-3 days a week)

☐Rarely

☐Never

11. How often do you play with your brother and/or sister?

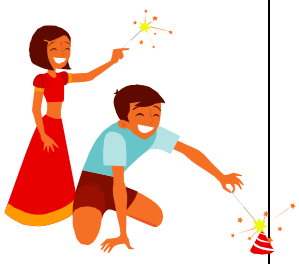
☐Everyday for at least 10 minutes

☐Often (4-5 days a week)

☐Sometimes (2-3 days a week)

☐I hardly ever play with my brother or sister

☐I never had a brother or sister



12. How often do you talk/ play with elder people? (e.g., grandma, people live in your neighborhood).

☐Everyday for at least 10 minutes

☐Often (4-5 days a week)

☐Sometimes (2-3 days a week)

☐I hardly ever talk with my elder people

☐Only when I have to do

13. How often do you play or take care of children younger than you?

☐ Everyday for at least 10 minutes

☐ Often (4-5 days a week)

☐ Sometimes (2-3 days a week)

☐ I hardly ever play or take care of children younger than me

☐ Only when I have to do

14. How often do you help your mother or family's house chores? (e.g., washing dishes, cleaning the house)

☐ Everyday for at least 10 minutes

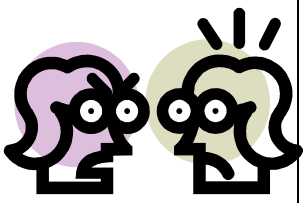
☐ Often (4-5 days a week)

☐ Sometimes (2-3 days a week)

☐ I hardly ever help my mother or family's house chores

☐ Only when I have to do

15. How often did you fight or argue with your brother and/ or sister in last 2 weeks?



☐ Everyday

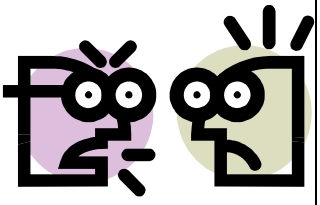
☐ Often (4-5 days a week)

☐ Sometimes (2-3 days a week)

☐ I hardly ever fought or argued with my brother/sister

☐ I do not have siblings

16. How often did you fight or argue with your friend in last 2 weeks?



☐ Everyday

☐ Often (4-5 days a week)

☐ Sometimes (2-3 days a week)

☐ I hardly ever fought or argued with my friends

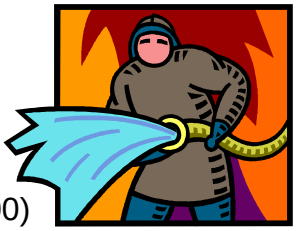
☐ I do not have siblings

Appendix F

Billy/Sally and the Fire Fighter Survey (Fire Fighter Survey)
(For male students)

Billy is a boy about your age. One night his house catches fire. He and all the members of his family escape in time, but they have time to bring nothing with them. A fire fighter comes up to Billy and says, "The house is going to be a total loss. Is there anything you would like us to try to get out of the house before it burns down?"

Here is a list of some of the things in the house. Choose the three things that Billy should tell the fire fighter to try to save if there is time. Then explain the reasons for your choice.



1. Brand new computer game set (cost $300)
2. Billy's baby kitten (8 weeks old. He got it for free)
3. The family dog (13 years old, cost $50)
4. Parent's purse ($100 and credit cards)
5. Billy's school stuff (e.g., textbook, homework; worth $200)
6. Billy's cell phone (1 year old, cost $200)
7. Family's car keys (car is safely parked on the street)
8. Brand new TV (worth $1500)
9. Little brother's hamster (6 months old, cost $30)
10. All family pictures

What is the most important thing to save first? _____

Why? _____

What is the second thing to save _____

Why? _____

What is the third thing to save _____

Why? _____

Now, if fire fighter approaches to your parents instead of you, what would your parent pick 3 things from the list? (You can pick the same items you picked above).

What is the most important thing to save first for your parent? _____

What is the second thing to save for your parent? _____

What is the third thing to save for your parent? _____

Now, if fire fighter approaches to your brother or sister instead of you, what would your brother or sister pick 3 things from the list? (You can pick the same items you picked above).

What is the most important thing to save first for brother or sister? ____

What is the second thing to save for your brother or sister? _____

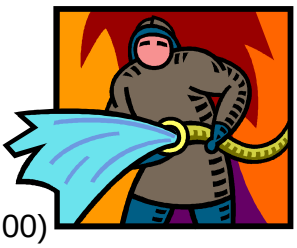
What is the third thing to save for your brother or sister? _____

Appendix G

Sally and the Fire Fighter Survey ("Fire Fighter Survey")
(For female students)

Sally is a girl about your age. One night her house catches fire. She and all the members of her family escape in time, but they have time to bring nothing with them. A fire fighter comes up to Sally and says, "The house is going to be a total loss. Is there anything you would like us to try to get out of the house before it burns down?"

Here is a list of some of the things in the house. Choose the three things that Sally should tell the fire fighter to try to save if there is time. Then explain the reasons for your choice.



1. Brand new computer game set (cost $300)
2. Sally's baby kitten (8 weeks old. She got it for free)
3. The family dog (13 years old, cost $50)
4. Parent's purse ($100 and credit cards)
5. Sally's school stuff (e.g., textbook, homework; worth $200)
6. Sally's cell phone (1 year old, cost $200)
7. Family's car keys (car is safely parked on the street)
8. Brand new TV (worth $1500)
9. Little brother's hamster (6 months old, cost $30)
10. All family pictures

What is the most important thing to save first? _____

Why? _____

What is the second thing to save _____

Why? _____

What is the third thing to save _____

Why? _____

Now, if fire fighter approaches to your parents instead of you, what would your parent pick 3 things from the list? (You can pick the same items you picked above).

What is the most important thing to save first for your parent? _____

What is the second thing to save for your parent? _____

What is the third thing to save for your parent? _____

Now, if fire fighter approaches to your brother or sister instead of you, what would your brother or sister pick 3 things from the list? (You can pick the same items you picked above).

What is the most important thing to save first for brother or sister? ____

What is the second thing to save for your brother or sister? _____

What is the third thing to save for your brother or sister? _____

Appendix H

Pet Ownership Survey

DIRECTIONS: We would like to know about any pets you have or used to have. Please answer the following questions as best you can. This questionnaire is **anonymous**. This means that nobody will know who answered the questions of the questionnaire, so you can be completely honest. Don't worry about spelling or grammar.

TELL US ABOUT YOUR PETS!

1) Do you have a pet (or pets) now?

☐Yes ☐ No

If you have a pet now…

1a) What kind of pet do you have? (If you have more than one pet, tell us all the pets you have) For example, do you have a dog, a cat, a rabbit, a fish, or any other animal?

1b) How long have you had your pet or pets?

1c) How do you feel about your pet or pets? Circle as many as you think are true for you. I think my pet is:

1) friend	2)family	3)nuisance	4) fun	5) playful
6) messy	7) bad	8)lazy	9) mean	10) evil
11) tears stuff up	12) cute	13) understands me		14) stinks
15) listen to me	16) loud and noisy		17) dirty	
18) sheds hair/feathers		19) buddy	20) a lot of work	

2) Have you ever had a pet <u>in the past</u>?

☐Yes ☐ No

If you had a pet in the past…

2a) What kind of pet did you used to have? (If you had more than one pet, write what kinds of pets you had)

2b) How long did your pet live in your home?

2c) How did you feel about your pet or pets?

3) Have you ever lost a pet (for example, the animal died, was given away to another family, or you could no longer find it, etc.)?

☐Yes ☐No

If you lost a pet, we would like to know…

3a) How did you lose your pet? (Write what happened or what your family told you happened)

3b) How did you feel when you lost your pet?

5) Answer these questions only <u>if you have never had</u> a pet:

5a) Would you have liked to have a pet?

☐ Yes ☐ No ☐ Maybe

5b) Why have you never had a pet?

Appendix I

What should you do? Survey ("Knowledge of Animal Care Survey")

What should you do?

Directions: We want to ask you a few questions about how to treat animals. Your name isn't on this paper and you won't be graded for it. We just want to know what you think. For each question please circle "True" if you think the statement is true or "False" if the statement is false. Just do the best you can.

1. If you see a dog you don't know, you should run up to it and say hello.

True False

2. If a dog is on a leash, ask permission to pet someone's dog.

True False

3. Once you've got permission, walk straight toward the dog, look it in the eyes and pat it on the head.

True False

4. Dogs, cats and all pets love big tight hugs.

True False

5. Dogs chase moving things including cars, cats, squirrels and toys so the best thing to do is freeze if you don't want a dog to chase you.

True False

6. It’s normal for dogs protect their place or home, so they will bark when you pass or come close.

True False

7. Sleeping dogs don't care if they are jumped on or surprised with a loud voice

True False

8. Being respectful and kind means leaving a dog or cat alone when it's eating or going to the bathroom.

True False

9. Chasing a dog or cat, then cornering it to catch it, is a bad idea. A scared pet can bite or scratch you to get away.

True False

10. Dogs, cats and all pets protect their babies so it’s <u>not</u> a good idea to run up and try to grab a puppy or kitten that is with it’s mother.

True False

11. It is okay to leave my pet outside.

True False

12. It is okay to leave my cat outside at night.

True False

Appendix J

Index of Empathy Revised Survey ("Empathy Survey")

The Index of Empathy-Revised

DIRECTIONS: We'd like to know whether or not you agree with each of these statements. There is no right or wrong answer. We'd just like to know what you think. Please circle the answer that is closest to how you feel. **Only choose one answer per statement.**

 -- You really agree with the statement
 -- You kind of agree with the statement
 -- You kind of disagree with the statement
 -- You really disagree with the statement

	Really agree	Kind of agree	Kind of disagree	Really disagree
1. It makes me sad to see a girl who can't find anyone to play with.				
2. People who kiss and hug in public are silly.				
3. Boys who cry because they are happy are silly.				
4. I really like to watch people open presents, even when I don't get a present myself.				
5. Seeing a boy who is crying makes me feel like crying.				
6. People who love their pets are silly.				
7. I get upset when I see a girl being hurt.				

More questions on the back side…

	Really agree	Kind of agree	Kind of disagree	Really disagree
8. Even when I don't know why someone is laughing, I laugh too.				
9. Sometimes I cry when I watch TV.				
10. I think it's funny to tease an animal.				
11. Girls who cry because they are happy are silly.				
12. It's hard for me to see why someone else gets upset.				
13. I get upset when I see an animal being hurt.				
14. It makes me sad to see a boy who can't find anyone to play with.				
15. It makes me happy when to see a dog that is happy and playing.				
16. Some songs make me so sad I feel like crying.				
17. I get upset when I see a boy being hurt.				

	Really agree	Kind of agree	Kind of disagree	Really disagree
18. It makes me sad to see a dog or cat that looks lonely or scared.	👍👍	👍	👎	👎👎
19. Grown-ups sometimes cry even when they have nothing to be sad about.	👍👍	👍	👎	👎👎
20. It's silly to treat dogs and cats as though they have feelings like people.	👍👍	👍	👎	👎👎
21. I get mad when I see a classmate pretending to need help from the teacher all the time.	👍👍	👍	👎	👎👎
22. Dogs and cats want to be loved just like people do.	👍👍	👍	👎	👎👎
23. Kids who have no friends probably don't want any.	👍👍	👍	👎	👎👎
24. Seeing a girl who is crying makes me feel like crying.	👍👍	👍	👎	👎👎
25. Animals have feelings just like people.	👍👍	👍	👎	👎👎

More questions on the back side…

	Really agree	Kind of agree	Kind of disagree	Really disagree
26. I think it is funny that some people cry during a sad movie or while reading a sad book.	👍👍	👍	👎	👎👎
27. I am able to eat all my cookies even when I see someone looking at me wanting one.	👍👍	👍	👎	👎👎
28. Animals don't care if you're mean to them.	👍👍	👍	👎	👎👎
29. I don't feel upset when I see a classmate being punished by a teacher for not obeying school rules.	👍👍	👍	👎	👎👎
30. Dogs don't need friends or companions like children do.	👍👍	👍	👎	👎👎

Thank you!

Appendix K

CTAQ- Revised Survey ("Animal Treatment Survey")

DIRECTIONS: We want to know what you do with your pet. For each statement below, please tell us how often you do each of the following with your pet, from you never do it, you sometimes do it, or you often do it. If you don't have a pet, imagine that you have a pet and answer the question based on what you think you would do if you had a pet. There are no right or wrong answers. Just put an **X** in box that is most true for you. **Choose only one answer per question.**

What do you do with your pet?

1. I play with my pet	☐ Never ☐ Sometimes ☐ Often
2. I give food or water to my pet	☐ Never ☐ Sometimes ☐ Often
3. I take my pet for a walk or exercise my pet	☐ Never ☐ Sometimes ☐ Often
4. I pet my pet	☐ Never ☐ Sometimes ☐ Often
5. I yell at my pet	☐ Never ☐ Sometimes ☐ Often
6. I cuddle with my pet	☐ Never ☐ Sometimes ☐ Often
7. When I am sad I cry with my pet	☐ Never ☐ Sometimes ☐ Often
8. I talk to my pet	☐ Never ☐ Sometimes ☐ Often
9. I allow my pet to stay in my room	☐ Never ☐ Sometimes ☐ Often
10. I play dress up with my pet	☐ Never ☐ Sometimes ☐ Often
11. I brush my pet or give my pet a bath	☐ Never ☐ Sometimes ☐ Often
12. I tell my secrets to my pet	☐ Never ☐ Sometimes ☐ Often
13. I spend time with my pet	☐ Never ☐ Sometimes ☐ Often

Appendix L

Parental Survey

1. Name of your child: _____ Age of your child: _____
First Last

2. How many children are you living with? _____

3. What kind of pet do you have?_____

4. What are your work schedules? Circle one.

Guardian (e.g., parent) 1: Full-time Part-time Do not work Work at home

Guardian (e.g., parent) 2: Full-time Part-time Do not work Work at home

5. What is your educational background?

Guardian (e.g., parent) 1

_____ Less than high school

_____ High school diploma

_____ College graduate

_____ Graduate school and/or other advanced degree

Guardian (e.g., parent) 2

_____ Less than high school

_____ High school diploma

_____ College graduate

_____ Graduate school and/or other advanced degree

6. If you are working, how does your child spend time after school during the weekdays?

____ Participate some school/ community activities

____ Stay at someone's (e.g., friends, relatives) house

____ Stay at home alone

____ Stay at home with someone else (e.g., grandparent)

7. Who takes major responsibility of your pet at home? For example, feeding, cleaning, exercise or play.

_____

8. What kind of responsibility does your child have for the pet(s)?

_____

9. How often does your child have to take responsibility for the pet a week?
_____days/ week

10. How do you guide your child when s/he forgets to take care of the pet ? (e.g., feeding/ cleaning) If more than one is true, please pick the one you usually do.

_____ Tell him/her exactly what s/he is supposed to do until they do it.

_____ I will help her/him to do what they are supposed to do

_____ I will just do it for her/him

_____ I do nothing

_____ I will punish her/him (e.g., take some privilege away, such as playing TV game)

_____ Other (Describe:)

11. Can you give an example of a recent situation where you had to say something to your child about taking care of your family pet?

_____

(Spanish version of Parental Survey)
Encuesta para los Padres/Guardianes (ESTO ES OPCIONAL)

1. Nombre de su hijo/a: _____ Edad de su hijo/a: _____
Primer Nombre Apellido

2. ¿Cuántos hijo/as viven con usted? _____

3. ¿Qué tipo de animal tiene usted?_____

4. ¿Cuál es su horario de trabajo? Haga un círculo en la mejor opción:

Guardián (e.g., padre) 1: Tiempo complete Tiempo parcial No trabaja Trabaja en casa

Guardián (e.g., padre) 2: Tiempo complete Tiempo parcial No trabaja Trabaja en casa

5. ¿Cuántos estudios tiene usted?

Guardián (e.g., padre) 1

_____ Menos de Secundaria

_____ Secundaria

_____ Graduado de Universidad

_____ Post Graduado y/u otra licenciatura avanzada

Guardián (e.g., padre) 2

_____ Menos de Secundaria

_____ Secundaria

_____ Graduado de Universidad

_____ Post Graduado y/u otra licenciatura avanzada

6. Si usted está trabajando, ¿cómo pasa su hijo/a su tiempo después de la escuela durante los días de la semana?

____ Participa en algunas actividades de escuela/comunidad

____ Está en casa de familiares o amigos

____ Está en casa solo/a

____ Está en casa con alguien (por ejemplo, abuelo/a)

___ Otro (Describe:)

7. ¿Quién tiene mayor responsabilidad de su animal en casa? (Por ejemplo, alimentar, limpiar, pasear o jugar con su animal.)

---

8. ¿Qué tipo de responsabilidades tiene su hijo/a con el/los animal(es)?

---

9. ¿Con qué frecuencia tiene su hijo/a responsabilidad por el animal a la semana?
_____días/semana

10. Cómo guía/enseña a su hijo/a cuando se le olvida cuidar del animal? (por ejemplo, alimentar/limpiar) Si más de una opción es verdad, por favor elija la opción que usted usualmente haga.

_____ Diga le exactamente qué le debe hacer hasta que él/ella lo haga.

_____ Ayudaré le a hacer lo que le debe hacer.

_____ Apenas lo haré para ella/él.

_____ No hago nada.

_____ Castigaré la/lo (por ejemplo elimino un cierto privilegio como juego al juego de la TV)

_____ Otro (describe:)

11. ¿Puede usted dar un ejemplo de una situación reciente donde usted tuvo que decir algo a su hijo/a sobre el cuidado de su animal domestico de la familia?

Appendix M

Incentive form[4]

Thank you very much for participating in the study! As a thank you gift, we would like to send you one of the following. Please choose one.

_____ Admission tickets for the Oregon Zoo

_____ Admission tickets for OMSI

_____ Gift certificate for the Powells' Bookstore

_____ Gift certificate for the Border's Bookstore

_____ I will donate my thank you gift ($10) to the Oregon Humane Society (your name will be acknowledged by the Oregon Humane Society)

Your name: _____
First Last

Your address:

_____
Number and Street City State Zip

Your address will not be shared with anyone and only the researcher, Ms. Maruyama, will see your address to send you a thank you gift. After Ms. Maruyama sends you a thank you gift, she will destroy this form and will not keep your address. We will send you a gift after all surveys are collected at the end of this summer. So, it may take some time to receive a gift from us, but please give us some time.

[4] This incentive was offered only for students who participated in the summer camp program at the Oregon Humane Society. Study participants from the after school program was all invited to the snacks and refreshment.