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An Investigation into Associations with Attachment, Companion Pet Attachment, Empathy, and Prosocial Behaviors in 18–20 Year Old College Students

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AN INVESTIGATION INTO ASSOCIATIONS WITH ATTACHMENT, COMPANION PET ATTACHMENT, EMPATHY, AND PROSOCIAL BEHAVIORS IN 18-20 YEAR OLD COLLEGE STUDENTS: A MIXED METHODS STUDY

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ABSTRACT

This study examines empathy, parental attachment, companion pet attachment and social behaviors in a sample of 120 students between the ages of 18-20 enrolled at Front Range Community College in Westminster CO during the fall semester 2008. The study is based on the research questions posed by Thompson and Gullone (2008) but pays particular attention to the relationships between and among variables measured in that study as well as their association with variables indicating companion pet companionship. The research questions are: (1) does parental empathic attachment predict prosocial and antisocial behaviors during older adolescence or young adulthood? And (2) does pet attachment compensate for low parental attachment? The hypotheses are that (1) parental attachment varies directly with empathy, humane treatment of animals, and prosocial behavior and inversely with antisocial behavior (animal cruelty); (2) pet attachment varies directly with empathy, humane treatment of animals and prosocial behavior and inversely with antisocial behavior (animal cruelty); and (3) pet attachment compensates for low parental attachment, serving as a moderating variable.

The hypothesis that parental attachment varies directly with empathy, humane treatment of animals, and prosocial behavior and inversely with antisocial behavior (animal cruelty) was not supported by the overall results as parental attachment was not significantly associated with any variables. There was support for the hypothesis that companion pet attachment varies directly with empathy and humane treatment of animals; but there was no association between companion pet attachment and parental attachment or animal cruelty. In this study, it was found that the variance in humane treatment of animals and animal cruelty could only be accounted for by empathy; parental attachment explained 1% of variance in prosocial behavior. The hypothesized mediating role of empathy was not supported in these findings nor was the moderating role of companion pet attachment. For the 18-20 year old sample it does not appear that secure parental attachment relationships is associated with empathy, humane treatment of animals, companion pet attachment, or prosocial behavior toward humans.

There were a number of limitations related to the scales used in this study as the researcher attempted to replicate the Thompson and Gullone (2008) study. Further research might utilize scales already standardized with older adolescents and young adults.

Additionally, this researcher suggests further research into the concept of "emerging adulthood" as the age range studied falls between adolescence and young adulthood.

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CHAPTER 1

INTRODUCTION TO THE STUDY

Thompson and Gullone (2008) investigated the links between parental attachment and empathy for prosocial and antisocial behaviors directed at both humans and animals for a sample of 12-18 year olds. A major finding of their investigation was that higher levels of empathy were associated with higher levels of parental attachment (p. 133). Their research indicated further that empathy acts as a mediating variable in associations between parental attachment and 1) human directed pro-social behavior, 2) the humane treatment of animals, and 3) animal cruelty during adolescence (p. 135). While there is increasing support for the idea that humane attitudes toward animals may be indicative of higher levels of human empathy (Taylor & Signal, 2005), there is inconclusive evidence as to whether or not human-animal relationships generate higher levels of empathy (Daly & Morton, 2003, 2006; Melson, 1991; Poresky, 1996). The main purpose of this study is to replicate and extend the Thompson and Gullone study, examining whether or not the same associations continue through young adulthood- a period when parental attachment and empathy may play a different, though significant role.

Healthy empathy development has been suggested to be crucial to the healthy development of prosocial behavior (Eisenberg & Strayer, 1987) for children and

adolescents. Eisenberg and Miller (1987) define empathy as "an affective state that stems from the apprehension of another's emotional state or condition, and that is congruent with it" (p. 91). Healthy empathy development includes emotion matching as well as the vicarious experiencing of another's emotions. Empathy is consequently linked to prosocial behavior which is voluntary behavior intended to benefit another (Eisenberg, 1992).The development of empathy has been linked to parental attachment (Thompson & Gullone, 2008). Parental attachment, or the parent-child relationship, is the foundation upon which social competence is built (Semrud-Clikeman, 2007). Adolescents who feel well-accepted report feeling better about themselves (Rice & Lopez¸ 2004) and demonstrate more prosocial behavior (Barry & Wentzel, 2000), including empathy. Social competence is a multilevel construct made up of social adjustment, social performance, and social skills (Cavell, 1990). Parental attachment has been linked to social competence which is a necessary component in college success as there is a significant relationship between attachment quality and psychosocial competence, particularly in social transitions occurring during the college years (Fass & Tubman 2002).

Is it possible for a young adult to develop empathy, exhibit prosocial behavior and social competence if he is not securely attached to a parent? This research investigates the relationships between parental attachment and empathy for prosocial and antisocial behaviors directed at both humans and animals in a sample of 18-20 year old college students. Additionally, this study explores companion pet attachment as a possible moderating variable – one that influences the strength and direction of the relationship

between empathy and parental attachment. Such a relationship could open the door for the investigation of the efficacy of animal-assisted therapeutic programs in fostering increased social competence in college students.

There is supporting evidence that humane attitudes toward animals may be indicative of higher levels of human empathy (Taylor & Signal, 2005); but, the evidence is inconclusive as to whether or not human-animal relationships generate higher levels of empathy (Daly & Morton, 2003, 2006). Thompson and Gullone (2008) investigated the links between parental attachment and empathy for prosocial and antisocial behaviors directed at both humans and animals among a sample of 12-18 year olds in Australia. A major finding of their investigation was that higher levels of empathy were associated with higher levels of parental attachment (p. 133). Their research indicated further that empathy acts as a mediating variable in associations between parental attachment and 1) human directed pro-social behavior, 2) the humane treatment of animals, and 3) animal cruelty during adolescence (p. 135). Current research investigating adolescent social behavior indicates that lower levels of empathy, most often using the Interpersonal Reactivity Index (IRI: Davis, 1980) may be predictive of an increased propensity towards anti-social behavior, including cruelty toward humans and animals (Ascione, 2005; Daly & Morton, 2008; Merz-Perez & Heide, 2004). These findings as a whole indicate that a significant consideration in assessing the efficacy and design of animal assisted therapeutic interventions may include measurements of parental attachment and empathy.

Statement of the problem

The main purpose of this study was to replicate and extend the Thompson and Gullone (2008) study, examining the same issues among a population of young adults where identity formation is a major developmental factor. Ensuing future research questions involve an investigation of empathic development. For example, can the capacity for empathy – with all its pro-social benefits – be increased through animal attachment? Further, how does increasing empathy through pet attachment compare with the strength of the relationship between parental attachment and empathy? Further research is warranted to investigate whether companion pet attachment may play a moderating role with both empathy and parental attachment.

A second related issue, also examined in this study, is whether the strength of the relationship found in the Thompson and Gullone (2008) study in adolescents is measured at a similar level in college students– a period when parental attachment and empathy may arguably play a different, though significant, role. Eisenberg and Strayer (1987) claim that empathy is also positively associated with socially competent functioning - an important component of young adult pro-social behavior. It may well be the case that at this life stage, parental attachment and empathy are important contributors to the successful resolution of the tasks of young adulthood – such as challenges of autonomy, competent performance, and adult identity formation (Arnett, 2000; Reich & Siegel, 2002). In fact, recent literature suggests that perceived attachment to parents is a component of wider patterns of social competence and adjustment that

may function as protective or compensatory factors during key transitions in young adulthood - such as happens in college life with its attendant demands for academic and social achievement. Still, there has not been an examination of humane treatment of animals or animal companionship as a resilient or protective factor during young adulthood nor as factors that may indicate levels of empathic development.

Purpose of the study

This study is based on the research questions posed by Thompson and Gullone (2008), but pays particular attention to the relationships between and among variables measured in that study as well as their association with variables indicating humane pet companionship.

Research Questions:

1. Does parental empathic attachment predict prosocial and antisocial behaviors during older adolescence/young adulthood?
2. Does pet attachment compensate for low parental attachment?

Hypotheses:

1. Parental attachment varies directly with empathy, humane treatment of animals, and prosocial behavior and inversely with antisocial behavior (animal cruelty).
2. Pet attachment varies directly with empathy, humane treatment of animals and prosocial behavior and inversely with antisocial behavior (animal cruelty).
3. Pet attachment compensates for low parental attachment, serving as a moderating variable.

Limitations, Assumptions, and Design Controls

This researcher was unable to utilize random selection as she was not given access to student contact information as she requested. Therefore, those participants in this research were those willing to log on to a website, were computer competent, read their college email (on the college email account), and were willing to participate for twenty minutes online. Additionally, this research was intended to include a qualitative piece by interviewing students upon completion of the quantitative piece. Due to scheduling and difficulties in reaching students who agreed to be interviewed, only one student was interviewed and the qualitative piece was subsequently dropped.

Assumptions of this study include: (1) Animals capture and hold another's attention (Wilson, 1984); (2) Animals make a difference (Melson, 2001); (3) Empathy for people and empathy for animals are not identical but are sufficiently correlated to command our attention (Ascione, Weber & Wood, 1997); (4) Children with distortions in their attachments may lack empathy and be likely to abuse animals (Magid & McKelvey, 1987); and (5) Humans develop a strong attachment bond to animals (Fine, 2000).

The biophilia hypothesis (Kellert & Wilson 1993; Wilson 1984) proposes a useful theoretical assumption, that is, that children have inborn responses to animals and natural settings in which they have evolved (Katcher & Wilkins, 1993) The term biophilia was coined by the Harvard biologist Edward O. Wilson in his 1984 book, *Biophilia: The Human Bond with Other Species.* Wilson wrote that human beings have an innate sensitivity to, interest in, and need for other living things because we have coexisted with

the natural world for so many millennia. His concept of biophilia suggested that the human brain is structured to pay selective attention to other kinds of life and subsequently may have important influences on cognition, health, and well being (Katcher 2000; Kellert and Wilson 1993; Wilson 1984). Therefore, biophilia is a product of biocultural evolution; that is, it is an inborn tendency shaped by learning, culture, and experience. Melson, in her 2001 book, *Why the Wild Things Are. Animals in the Lives of Children*, writes, "Biophilia depicts children as born assuming a connection with other living things. The emotions and personalities of animals, real and symbolic, are immediate to children in the same way that the emotions and personalities of people are. Because of this, animals enter the drama of a child's life in direct and powerful ways. Children readily access animals as material in the development of a sense of self. Every human child begins life situated in what adults call "the animal world" (pp. 19-20).

Definition of Key Terms

The terms in this section are those terms directly related to this research that will be used throughout the research.

Animal cruelty/animal abuse. Attempts to define animal abuse share a number of features: "…the harm inflicted on animals should be (1) socially unacceptable, (2) intentional or deliberate, and/or (3) unnecessary" (Agnew, 1998). It is a range of behaviors harmful to animals, from neglect to malicious killing.

Antisocial behavior. Antisocial personality disorder is defined as a pervasive pattern of disregard for and violation of the rights of others occurring since age 15 years, as indicated by three (or more) of the following: (1) failure to conform to social norms

with respect to lawful behaviors as indicated by repeatedly performing acts that are grounds for arrest; (2) deceitfulness, as indicated by repeated lying, use of aliases, or conning others for personal profit or pleasure; (3) impulsivity or failure to plan ahead; (4) irritability and aggressiveness, as indicated by repeated physical fights or assaults: (5) reckless disregard for safety of self or others; (6) consistent irresponsibility, as indicated by repeated failure to sustain consistent work behavior or honor financial obligations; (7) lack of remorse, as indicated by being indifferent to or rationalizing having hurt, mistreated, or stolen from another. The individual must be at least 18 years old to diagnose with Antisocial personality disorder and the occurrence of antisocial behavior is not exclusively during the course of schizophrenia or a manic episode (DSM IV-TR; American Psychiatric Association, 2000, pp. 645–650).

Attachment. Attachment is defined as the reciprocal process by which an emotional connection develops between an infant and his/her primary caregiver (Bowlby, 1982,). This definition has been expanded to include an attachment to another sentient being. Crawford, Worsham & Swinehart (2006) distinguishes between attachment as measured by current research on the human-companion animal relationship and as defined by attachment theorists Bowlby (1969) and Ainsworth and Wittig (1969).

Empathy. Empathy is an affective response that stems from the apprehension or comprehension of another's emotional state or condition and is similar to what the other person is feeling or would be expected to feel (Eisenberg, 2000, p. 670).

Prosocial behavior. Prosocial behavior is defined as the voluntary, intentional behavior that results in benefits for another, such as helping, sharing, cooperating with and comforting others (Carlo & Randall, 2002; Eisenberg, 1992).

Social competence. Social competence is defined differently depending on the environment in which one is expected to function. Generally, it is defined as the ability to assume roles and to express varied repertoires pursuant to goal attainment (O'Malley, 1975). This may include the following skills: 1) empathy and role-taking; 2) prosocial development; 3) self- control – the ability to delay your own needs and wishes in situations that include taking turn, making common decisions and compromises, and to handle conflicts in acceptable ways; 4) self-assertion – the ability to assert yourself and your own meanings in an acceptable way, how to handle group pressure and how to become included in ongoing interactions and conversations; and 5) play, pleasure and humor (Lamer 1997).

Summary

The implications for both higher education and social work, and particularly for human-animal bond researchers and clinicians, and those in violence prevention/child abuse work follow from the challenge of determining directionality of the association between empathy and prosocial/antisocial behavior. Age-old assumptions in the field of human-animal bonds argue that empathy toward animals promotes the development of empathy toward humans; and, alternately, cruelty to animals advances cruelty to humans (i.e. lack of empathy). Other researchers (Ascione, 2005; Melson, 1998; Thompson & Gullone, 2003) caution that the presence of pets in the home does not guarantee

empathy will emerge and suggest it is the quality of the human-animal bond that affects empathy. In addition, Ascione (1993) suggests that animal abuse in childhood may compromise the development of empathy. Others argue that empathy is a fundamental component in the development of prosocial behavior, including social competence (Davis, 1983; Eisenberg & Miller, 1987; Frey, Hirschstein & Guzzo, 2000). Researchers (Frey et al., 2000; Frey, Beesley & Miller, 2006) contend that social competence is positively associated with academic achievement and college success. This is an area of academic controversy to which this paper may make a significant contribution. It is also true that beginning to untangle the relationships between and among these variables will open up rich investigations with implications for the development of research informed practices that can be used in both social work and education.

The remainder of the study is organized into four chapters. Chapter 2 is a review of related literature about the problem and purpose of this study. Chapter 3 is the research design and methodology used in this study. Chapter 4 is the analysis of data and Chapter 5 is the section giving an overview of the study, the findings, conclusions and implications derived from this research.

CHAPTER 2

LITERATURE REVIEW

Introduction

This paper examines empathy, parental attachment, companion pet attachment and social behaviors in a population of young adults. The study is focused on the relationship of these variables to self reported prosocial and antisocial behavior among young adults, where such behaviors are defined, respectively, as humane treatment of animals, prosocial treatment of humans, and animal cruelty. It is an investigation of the predictive roles played by parental attachment, companion pet attachment, and empathy for prosocial and antisocial behaviors directed at both humans and animals, the mediating role played by empathy in these relationships and the moderating role played by companion pet attachment in the relationship between parental attachment and empathy.

Empathy

Empathy is defined by researchers (Eisenberg, 2000; Eisenberg & Miller, 1987; Eisenberg & Mussen, 1989) as an affective response that stems from the apprehension or comprehension of another's emotional state or condition and is similar to what the other person is feeling or would be expected to feel. This may include recognizing feelings in oneself and others, considering another's perspective, and then responding emotionally to

others. It is the vicarious experiencing of another's emotions. Thus, it is a cognitive, emotional and intellectual process (Frey, et al., 2000; Trusty, Ng & Watts, 2005).

A number of researchers have studied empathic development and one's ability to demonstrate empathy. Researchers (Joireman, Needham & Cummings, 2001; Pistole, 1999; Trusty et al., 2005) report empirical evidence that associates empathic response with attachment style, indicating that those individuals with a secure attachment style exhibit more empathic concern and perspective taking.

Thompson and Gullone (2008) examined empathy as it related to parental attachment, prosocial and antisocial behaviors in 12-18 year old students. Using a combination of standard multiple regression and hierarchical multiple regression analyses, they found that parental attachment was a significant predictor of empathy for this population. Additionally, Thompson and Gullone (2008) found that the majority of variance in prosocial behavior, the humane treatment of animals, and animal cruelty was accounted for by empathy; therefore, in this study empathy was found to serve a stronger predictive role when compared with attachment (p. 133). They also found that empathy fully mediated the association between attachment and the humane treatment of animals, but only partially mediated the associations between attachment and each of prosocial behavior and animal cruelty (p.133).

Prior empirical work clearly demonstrates that the development of empathy is related to the healthy emotional and social functioning of adolescents (Eisenberg & Miller 1987; Zahn-Waxler, 1991). Other studies (Eisenberg & Mussen 1989) have also reported that empathic and prosocial styles of responding to others are important

antecedents of social competence; conversely, empathy has been shown to be a core deficit in antisocial and aggressive youths (Arluke, Levin, Luke, & Ascione, 1999; Henry 2004; Merz-Perez et al. 2001). Social competence is of utmost importance with the identified population of 18-20 year old college students and includes (but is not limited to) constructs such as patience, empathy, self esteem, ability to read others' emotions and body language, ability to self calm, relationship skills, and academic/vocational performance. These skills often determine whether a young person will be successful in college and then in the work place.

College life offers older adolescents and young adults a social environment conducive to intellectual, moral and social-emotional exploration and these students vary widely in their ability to face the stressors of college life. Coping styles have been found (Seiffge-Krenke &Beyers, 2005) to be related to differences in attachment. Additionally, these skills which determine social competence include friendliness and cheerfulness, ability to initiate social activities, having a sense of humor, being enthusiastic, athletic, intelligent, honest, ability to take a joke, plays fair and follows rules (Coie et al., 1990). If a student is not socially competent, he or she may display behaviors that may lead to antisocial actions such as being disruptive, conceited, self-centered, aggression and bullying, and violate rules. Bierman (2004) contends that "Being socially competent involves the capacity to participate effectively in dynamic interpersonal processes across a range of social contexts" (p. 8) and determines whether an individual is accepted or rejected. Researchers (Bierman, 2004) argue that there are four patterns of behavior problems that are linked to peer rejection and include: 1) low rates of prosocial behavior,

2) high rates of aggressive and disruptive behavior, 3) high rates of inattentive and immature behavior, 4) high rates of socially anxious and avoidant behavior. These behaviors may, then, be directly resultant of poor attachment, low levels of prosocial behavior, and subsequent lower levels of empathy.

Prosocial Behavior

The question remains as to whether secure attachment, to parent or pet, increases prosocial behavior. Prosocial behavior has been defined by a number of researchers (Carlo & Randall, 2002; Eisenberg, 1992; Eisenberg & Fabes, 1998; Eisenberg & Miller, 1987; Eisenberg & Mussen, 1989) as the voluntary, intentional behavior that results in benefits for another, such as helping, sharing, cooperating with and comforting others and is the definition used in this research. In addition, the connection between empathy and prosocial behavior has been well documented (Eisenberg 1986; Eisenberg & Strayer, 1987). However, the degree of positive association between measures of empathy and prosocial behavior varies depending on the method of measurement, the contexts in which both constructs are assessed and ages of the samples (Eisenberg & Miller, 1987).

Prosocial behavior is central as these behaviors are associated with social competence, academic and vocational success. Those with higher incidences of prosocial behavior tend to be well adjusted, have good coping skills and self control (Eisenberg & Mussen, 1989). The widely understood four prosocial behaviors of helping (responding to others who are dealing with negative consequences through no fault of their own), sharing (giving up one's own needs or wants or resources to benefit another), cooperating (coordinating behaviors to obtain a specific goal) and comforting (acting in a way to

improve another's mood) (Jackson & Tisak, 2001) behaviors involve interactions with others; therefore, it may mediate against loneliness, isolation, and depression. Additionally, it mediates against peer rejection (Coie, Dodge & Kupersmidt, 1990) as the young person is friendlier, initiates social activity, displays a sense of humor, is cheerful and enthusiastic, intelligent, plays fair, etc. This, in turn, increases social competence as positive social acts such as listening attentively, providing help for those in need and comforting are examples of prosocial behavior. Older adolescents who have underdeveloped empathy are likely to experience difficulty with prosocial skills; this, in turn, makes the development and maintenance of friendships difficult which subsequently inhibits social competence (Coleman & Byrd, 2003).

Some (Carlo & Randall, 2002; Eisenberg and Mussen, 1989) collapse the types of prosocial behaviors into five categories based on motivation, reporting that emotion plays an important role in the development of prosocial values, motives and behaviors, particularly empathy-related emotions. The five categories include: 1) altruism which is the voluntary helping motivated primarily by concern for the needs and welfare of another person which is often generated by sympathy as well as internalized norms and principles consistent with helping others; 2) compliant prosocial behaviors are those behaviors that help others when asked. This tends to be more frequent than spontaneous helping. This construct has primarily been studied with children rather than adolescents so research with this age range is limited; 3) emotional prosocial behaviors is helping under emotionally evocative circumstances and is often a reaction to overarousal and personal distress precipitated by the other's distress; 4) public prosocial behaviors are

likely to be motivated by a desire to gain the approval and respect of others and enhance the helper's self worth. This helping is more likely to occur in front of an audience; and, 5) anonymous prosocial acts is helping performed without knowledge of the helper's identity (Carlo & Randall, 2002; Eisenberg & Fabes, 1998). Studies (Carlo & Randall, 2002) report that adolescents who reported more helping in public contexts were less sensitive to others' needs and engaged in less sophisticated forms of reasoning and perspective taking. Those adolescents who were more altruistically inclined reported higher levels of internalized, principled prosocial moral reasoning and perspective taking. It is important to note that the motivations are not mutually exclusive and an individual may seek others' approval while also enhancing his or her own self concept, and have strongly internalized norms or be highly sympathetic. Carlo and Randall (2002) report, "the unique pattern of relations among individuals with different prosocial behaviors suggests that the structure of prosocial behaviors is multidimensional in late adolescence "(p. 40).

Additionally, Eisenberg and Fabes (1998) define indicators of prosocial behavior development, including 1) the experience of empathy and development of prosocial behaviors is genetically determined; 2) prosocial behaviors are socially constructed; 3) personal demographic variables such as age, gender, socioeconomic status, temperament, and personality may act as moderator variables between precursors and prosocial behavior; 4) prosocial behaviors are constructed within and outside the family via the four agents of socialization (i.e. family, peers, institutions, media); 5) prosocial behavior may be related to cognition, role taking, interpersonal problem solving and moral

judgment; 6) emotional factors are frequently antecedents to prosocial behavior; and 7) behavior is also affected by situational factors. Thus, prosocial behaviors are not static, but, rather, fluid. And, finally, in many settings, prosocial behaviors frequently are included in measures of social competence, which may, in part, be determined by parental attachment.

Parental Attachment

As indicated above, Thompson and Gullone (2008), using regression analyses, found that empathy partially mediated the associations between parental attachment and social behaviors. Parental attachment theory is the joint work of John Bowlby and Mary Ainsworth (Ainsworth & Bowlby, 1991) and is seen as both a typical developmental stage through which most humans pass and also as an individual process determined by a child's tie to the mother and its disruption through separation, deprivation, and bereavement. Thus, the "attachment figure" can serve as a secure base for a child from which he or she explores the world. Ainsworth's strange situation research (1978) is a definitive study in defining different attachment categories by observing children in a playroom environment. She identified a secure child as one who explored an unfamiliar environment in his or her mother's presence. An avoidant child was one who did not appear excited to explore the playroom though did reluctantly; and, an ambivalent child was so preoccupied with his or her mother he or she could not explore the playroom.

Bowlby (1969) contends that attachment is a reciprocal process by which an emotional connection develops between an infant and his/her primary caregiver. He stated that attachment develops in the first three years of life to ensure propinquity to the

mother which thereby manages any anxiety arising from fear of abandonment. This is accomplished via repeated experiences with attachment figures. As the child develops, mental representations of relationships between him/herself and others (particularly the mother) reinforce his or her ability to trust the availability and responsiveness of others. This, in turn, validates his or her perception of personal self-worthiness and competence. This internalized "attachment state of mind" (Bartholomew & Horowitz, 1991) allows the child to structure expectations and guide his or her reactions in times of stress. These replays of attachment experiences that have been established carry forward into adulthood where they help the individual predict and manage stressful encounters, especially in relationships with significant others (Seiffge et al., 2005). Therefore, this attachment state of mind determines what is deemed stressful and how to cope. It influences the child's physical, neurological, cognitive, and psychological development and becomes the basis for development of basic trust or mistrust, and shapes how the child will relate to the world, learn, and form relationships throughout life. There is emerging evidence that securely attached young children are found to have a more balanced self-concept, more advanced memory processes, a more sophisticated grasp of emotion, a more positive understanding of friendship, and they show greater conscience development than insecurely attached children. Secure attachments appear to play a very important role in shaping the systems that underlie children's reaction and coping to stressful situations (Shonkoff and Phillips, 2000).

Expanding further, numerous self-report measures, both categorical and continuous, of adult attachment have been developed by researchers (Bartholomew,

1990; Bartholomew & Horowitz, 1991; Brennan, Clark & Shaver, 1998) since the mid-1980's to assess the patterns of attachment in parent-child relationships within nuclear families as well as adult attachment styles and orientations. A major focus of these measures is to determine how information about past attachment figures is structured, organized and stored; the center of attention is not on the content but rather on the various "states of mind" that presumably reflect the operation of deeper, more "unconscious" internal working models stemming from childhood (George, Kaplan & Main, 1985). The parent-child attachment "style" (or state of mind) can then be extended to romantic relationships and other peer relationships. Ainsworth's classifications of ambivalent, avoidant, and secure patterns of infant mother attachment (Ainsworth, Blehar, Waters & Wall, 1978) have been reformulated by other researchers (Hazan & Shaver, 1987; Bartholomew & Horowitz, 1991; Brennan et al., 1998) to include attachment types such as secure, anxious/ambivalent, and avoidant (including fearful-avoidant and dismissing-avoidant). In general, those with secure attachment are neither anxious nor avoidant in their adult attachment orientations, report more favorable developmental histories and higher levels of trust and satisfaction in their love relationships, more frequent positive emotions and less frequent negative emotions, higher levels of constructive thinking and lower levels of interpersonal problems and depression than those who are insecurely attached (Lopez, Mauricio, Gormley, Simko & Berger, 2001).

Secure parental attachments for older adolescents or young adults differ from those for children. For the older adolescent, secure parental attachment may be conceptualized more as a source of security and support as he or she negotiates the

numerous transitions and challenges of this difficult developmental period, to buffer life stress, and as a 'port in the storm' where the young person may return for validation. Those with secure attachment, then, are organized by rules that allow acknowledgement of distress and turning to others for support (Kobak & Sceery, 1988). These individuals reportedly (Saferstein et al., 2005) have more secure friendship qualities, such as high levels of companionship, help, closeness and security within their friendships and low levels of interpersonal conflict. Consequently, those with secure relationships with parents tend to have secure relationships with peers based on trust and support; these relationships assist in the student's establishment of identity and are correlated with good social skills, a positive self image and solid emotional adjustment (O'Koon, 1997). An individual with this attachment style basically has positive views of both self and other (Reich & Siegel, 2002) and seeks support when needed and reflects on possible solutions when problem solving. This individual is competent when dealing with stress.

Conversely, those with insecure attachment restrict acknowledgement of distress and won't seek comfort and support (Kobak & Sceery, 1988). He or she uses more internal coping and are less inclined to seek support from others. They tend to withdraw when dealing with stressors. They may be at higher risk for self defeating and problematic outcomes because this coping style frequently does not result in a reduction in distress.

Fass and Tubman's (2002) results provided evidence for a relationship between attachment and other measures of social competence. They reported, "Therefore, attachment quality may be a significant compensatory factor for the development or

maintenance of competence in social transitions occurring during the college years" (p. 569). Erikson (1968) discussed the college years as the period of early adulthood when people are exploring personal relationships. Erikson believed it was vital that people develop close, committed relationships with other people. Those who are successful at this step will develop relationships that are committed and secure. Erikson taught that each step builds on skills learned in previous steps. Erikson believed that a strong sense of personal identity was important to developing intimate relationships. Studies have demonstrated that those with a poor sense of self tend to have less committed relationships and are more likely to suffer emotional isolation, loneliness, and depression.

For the 18-20 year old population, there are numerous stressors that include, but are not limited to, developmental issues (e.g. self image and identify formation), peer and family conflicts, academic problems and school transitions, and initiation and maintenance of relationships (Seiffge & Beyers, 2005). How these older adolescents cope with these stressors is important for further adjustment. Coping with age-typical stressors, then, builds on earlier experiences, the individual's attachment system, the context and significance of a perceived threat and the ensuing degrees of distress. Thus, the skills needed to form intimate relationships and resolve interpersonal conflicts requires social competence, that is, the ability to effectively function within social contexts. If one has an insecure attachment to parents, can attachment to a pet reconcile some of these deficiencies?

Companion Pet Attachment

As with parental attachment, researchers in the field of the human-animal bond (Beck, 1983; Beck & Katcher, 1996, 2003; Fine, 2000; Melson, 1998) report that animal companionship buffers and reduces the impacts of stress and anxiety. One significant role an animal may play in a family is a substitute for other family members, often for a family member that has physically or emotionally left the family. Additionally, if a child has a dysfunctional relationship with a parent or parents, an animal may serve to meet his or her emotional needs. The question is whether this relationship may mediate against an insecure attachment and resultant lower levels of empathy and prosocial skills. In the year 2000, there were over 212 million pets living in 60% of United States households (Salzman, 2000); additionally, in the majority of households, the animals were considered family members (Katcher 1981) and these pets take on many different roles (Turner, 2005). Similarly, with approximately 80% of families in the United States acquiring some kind of pet during their offspring's' childhoods, there is a common belief that pets will foster sensitivity to the feelings and attitudes of others, responsibility, and provide companionship as well as increase their children's empathy and nurturing capabilities (Becker, 2002; Poresky et al., 1987; Poresky, 1996; Serpell, 1996). Poresky et al. (1996) conducted both a parent survey of 88 parents, and 44 in home assessments of three- to six-year old children and supported other research (Kidd & Kidd, 1985; Melson, 1991) that defend the hypothesis that normal preschool children's cognitive, motor, and social development has multiple contributing influences including maturation (age), the quality of their home environment, and their relationship with a companion animal. Daly and

Morton (2003) surveyed 137 children in Ontario, Canada in grades four through eight and found that hat pet ownership does not increase a child's subsequent empathic development. However, pet 'ownership' is more than chaining a dog in the back yard. It is the attachment to the pet that is crucial.

For the child, and then the adolescent and young adult, the pet may be viewed as a confidante and support. The pet offers affection, is not judgmental and is available when needed. As the adolescent pulls away from parents in the developmental quest for self-identity, he or she may still have a need to be wanted, to fit in and be accepted, to be loved, and to have someone to talk to. Young adulthood is a time when the older adolescent is developing a life apart from the family of origin. The two major tasks of this stage (Erikson, 1968) are to determine a career path and make a decision about relationships. Oftentimes, this is the first time the young person is alone; and, the pet may be fulfilling the person's need for companionship and frequently takes on a human-like role in the person's life.

Shore, Douglas and Riley (2005) examined pet attachment with nontraditional college students living with a pet dog or cat. The study categorized owner behaviors as essential, standard, enriched, or luxury care. Most respondents reported engaging in the behaviors designated as essential care; therefore, respondents who indicated they were not very attached to the target pet were as likely to provide basic care, and a number of other beneficial attentions, as were moderately or highly attached pet owners (p. 9). Consequently, pet attachment scores appeared related to standard and enriched care behaviors in this study. For purposes of this dissertation, the definition of pet attachment

(Garrity & Stallones, 1998) is best typified as: a reciprocal close relationship that provides feelings of warmth and security; a sense of loss when apart (or when the pet dies); a sense of responsibility for the pet's care and a commitment to its well being; inclusion in the family; and a joyful involvement in play and activities together. Thus, while the older adolescent's experience may be fraught with stress, anxiety, and insecurity, it is this researcher's position that pet attachment may be a protective factor for his or her well-being.

Humane Treatment of Animals

One measure of prosocial behavior is the humane treatment of animals. Animals permeate the ecology of children's development, from early childhood through adolescence. However, people in our society face many contradictions regarding the treatment of animals. As little children, we are taught the social value of kindness to animals; yet, the reality is that the mistreatment of animals in our society is rampant and most people, seemingly, accept this discrepancy. Supporters of the biophilia hypothesis contend that children have a fairly high degree of interest in and concern for animals and wildlife. Some researchers (Melson, 2001; Katcher & Wilkins, 2000) suggest that caring for animals is a way children learn to nurture. Animals play important roles in motivating children and shaping how they view the world and their place in it. As indicated in the biophilia hypothesis, caring for pets is only one way children can engage with animals and nature. Humane treatment of animals is more than being kind to the family pet, but, also, includes the ways in which nonsentient beings are treated. The symbolic role of animals in society is important as well. Therapy dogs were flown to Ground Zero when

the World Trade Center was attacked. Pet Partners visit nursing homes and hospitals to offset loneliness and fear in their patients. On a sunny day any zoo in any city is teaming with people wishing to be near its inhabitants. Therapeutic centers and 'companionable zoos' have sprung up to treat those with developmental disabilities and children with Attention Deficit Hyperactivity Disorder. Equine psychotherapy programs and programs affiliated with the North American riding for the Handicapped Association are accepting volunteers, students, and members. Animals have healing power. They promote a calming ambiance. Even police officers carry teddy bears as part of their trauma kits to help calm injured or frightened children. Advertising is sated with animal images and pets and animals have many of the same rights and protections as humans do. Children are given stuffed animals to comfort them and adults often have pictures of their pets or pictures of animals in their offices to calm them during stressful times. Animals are important to people; yet, little attention is given to understanding why animals are important and why these symbols are important to us and society as a whole (Beck & Katcher, 2003). It is speculated (Goleman, 1995; Kellert, 1997 Melson, 2000) that animals contribute to a person's sense of security, as well as play a significant role in early perceptual, cognitive, and language development via animal storybooks and videos. Humane Education has become part of our school's curriculum to teach children the value of kindness and compassion and to promote empathic responses. Cruelty to animals is now one criterion in formulating diagnostic impressions of those with behavioral and mental health issues.

Animal Cruelty

Alternatively, understanding cruelty to animals helps one become more familiar with the concepts and causes associated with animal abuse as well as the connection between animal abuse and youth violence/antisocial behavior (Arluke et al., 1999; Henry, 2004; Merz-Perez, Heide & Silverman, 2001). Animal cruelty is defined as range of behaviors harmful to animals, from neglect to malicious killing (see chart below). Unfortunately there are no national standards for defining different types and severity of animal abuse. Definitions of animal abuse are dependent on the age and type of animal involved. Some animals are considered to be pests and their destruction may not be considered abusive (Ascione 2005). There is no standardized reporting and recording of animal abuse cases and there is no uniform mandate reporting law for suspected animal abuse. This makes it difficult for the public to grasp the extent of this problem and makes it all but impossible to compare accurate statistics between years. However, the Humane Society of the United States (HSUS) has been compiling high profile cases of animal cruelty on a national scale since 2000. From 2001 to 2003 they reported that teens accounted for 20% of the intentional acts of cruelty against animals, which HSUS contends is consistent with those reported by the Office of Juvenile Justice and Delinquency Prevention (OJJDP) for other juvenile violent crime arrests. Of the juvenile animal abusers, 95% are male and most are between the ages of 13 and 17; those under 13 have a low percentage of involvement in intentional cruelty. The reported rate of juvenile animal abuse is low when compared with other juvenile crimes known to be frequently associated with animal cruelty (e.g. arson and vandalism). The OJJDP does

not track animal cruelty arrests nor do most law enforcement agencies (HSUS, 2001 Report).

The 2003 charts include:

Gender	All Cases	Intentional Cruelty	Animal Fighting	Neglect	Animal Hoarding
Males	75%	92%	93%	54%	34%
Females	25%	8%	7%	46%	66%

Intentional Cruelty

Age	Intentional Cruelty	Male	Female
Child (7-12)	1%	100%	0%
Teen (13-19)	22%	95%	5%
Adult (20 or over)	77%	91%	9%

Offenses

Common Offenses	% Violent cases	% Involving males	% Involving females
Shooting	17%	94%	6%
Animal fighting	17%	93%	7%
Torturing	11%	95%	5%
Beating	11%	97%	3%
Mutilation	10%	95%	5%
Throwing	7%	94%	6%
Burning	6%	91%	9%
Poisoning	4%	100%	0%
Stabbing	3%	78%	22%
Kicking	3%	93%	7%
Dragging	3%	85%	15%
Suffocating	1%	89%	11%
Drowning	1%	89%	11%
Animal Sexual Abuse	1%	88%	12%
Hanging	1%	83%	17%
Run over with a vehicle	1%	100%	0%
Neglect: Malnourished	70%	53%	47%
Neglect: Emaciated	30%	53%	47%

In the 2007 Humane Society of the United States analysis of 1,869 animal cruelty cases, 21.3% of intentional cruelty cases were perpetrated by juveniles. Similar to statistics from 2001-2003, 90% of the juvenile animal abusers were male. Child perpetrators (ages 0-14) accounted for 5.8% of the intentional cruelty cases from 2001-2003 and also in 2007. To reiterate, the prevalence of prosecution for animal abuse cases is difficult to assess because there is no reliable national database that provides a statistical analysis of how many animal cruelty cases are criminally charged and prosecuted each year.

The relationship between animal abuse and interpersonal violence toward humans has received much attention from researchers (Ascione, 2001, 1999; Kellert & Felthous, 1985; Miller & Knutson, 1997). In fact, the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) includes animal cruelty in its diagnoses of conduct disorder for youth and antisocial personality disorder for adults, meaning that the individual violates the basic rights of others without remorse. Animal abuse may vary in frequency, severity and chronicity and range from the developmentally immature teasing of animals to serious animal torture but most assessment tools are unable to distinguish these important differences.

Also complex are the motivations that may underlie animal abuse by children and adolescents. Kellert and Felthous (1985) identify nine motivations behind animal cruelty and include 1) to control and animal (e.g. training), 2) to retaliate against an animal, 3) to satisfy a prejudice against a species or breed such as a hatred of cats, 4) to express aggression through the animal, such as training a fighting dog, 5) to enhance one's own aggressiveness, such as using an animal for target practice, 6) to shock people or for amusement, 7) to retaliate against others, such as killing an ex-girlfriend's adored dog, 8) to displace hostility from a person to an

animal, and 9) to experience nonspecific sadism ((p. 1122-1124). Ascione et al. (1997) also address motivations in children and include the following: 1) curiosity or exploration and an animal is harmed in the process, 2) peer pressure, 3) mood enhancement, that is, animal cruelty may be used to relieve boredom or depression, 4) sexual gratification, such as bestiality, 5) forced abuse, that is, someone forces the child to abuse an animal, 6) attachment to an animal in which case a child kills an animal to prevent the animal from being tortured by someone else, 7) animal phobias when a child may fear being attacked by the animal, 8) identification with the child's own abuser, 9) posttraumatic play, that is, reenacting violent episodes with an animal victim, 10) imitation, that is, copying another's treatment of animals, 11) self-injury, that is using an animal to inflict injuries on the person himself, 12) rehearsal for interpersonal violence, and 13) as a vehicle for emotional abuse, such as frightening a sibling's pet to frighten this sibling (Ascione et al., 1997b). Regardless of motivation, it is clear that attention to parental attachment, empathy, and levels of prosocial behavior do contribute to our understanding of social competence which is mutually exclusive with the antisocial behavior of serious animal cruelty. However, we do need to safeguard consolidating all who have committed an act of animal cruelty together and labeling them as antisocial.

Summary

The college experience is marked by numerous opportunities and challenges that, in combination with normative developmental tasks, form a crossroads for the young person that requires competent adaptation (Fass & Tubman, 2002). There is growing evidence of the importance of attachment security in late adolescence or early adulthood. Davis(1983) reported that a person with a secure attachment style exhibited more empathic concern and perspective

taking; we now know that this then facilitates functioning in interpersonal relationships (Joireman , Needham, & Cummings2001), including friendships (Saferstein , Neimeyer & Hagans, 2005) and social competence. Seiffge-Krenke and Beyers (2005) report, "A central notion of attachment theory and research is that representations of attachment experiences, once established, will be carried forward into adulthood where they help individuals to predict and manage stressful encounters, especially in relationships with significant others" (p. 563).

University life used to offer late adolescents and young adults a social environment conducive to intellectual, moral and social emotional exploration; Erikson (1968) called this a "psychosocial moratorium" where young people were freed from the burdens of adulthood to pursue their personal development. This is not the case for many college age students any longer. Still, moving beyond childhood may arouse ambivalent feelings as the young person strikes out on his/her own without the security of home and parents. Continuing attachment to parents has been hypothesized to have an ongoing impact on the emotional functioning and perceived stress levels for college-aged youth (Braver et al., 1992). Additionally, findings (Fass and Tubman, 2002) suggest that enhancing an at-risk student's social competence may lead to enhanced academic achievement. Replicating Thompson and Gullone (2008), this study examines the links between parental attachment and empathy for prosocial and antisocial behaviors directed at both humans and animals for a sample of 18-20 year old college students. This study also includes an examination of companion pet attachment and whether this variable might serve to moderate low parental attachment. If so, college administrators may be able to design programs to enhance students' cognitive and/or psychosocial self beliefs and foster greater social competence utilizing animal assisted therapeutic techniques.

CHAPTER 3
METHODS

Participants

Study participants were students enrolled at Front Range Community College (FRCC) in Westminster, Colorado during the fall semester 2008. All enrolled students between the ages of 18 and 20 years (N=1806) were invited to participate in the study via an email message sent to their FRCC email addresses by Student Services(See Appendix I *Invitation to Participate*). Those who chose to participate were forwarded to the researcher's blog where there was a direct link to the survey site. The survey site was a secure site owned by **SurveyMonkey** (http://www.surveymonkey.com). **SurveyMonkey** is an online survey tool that enables people of all experience levels to create their own surveys quickly and easily and utilizes numerous layers of security to make sure that the account and data remains private and secure. They reportedly employ a third-party firm to conduct daily audits of security; and, they report the data are kept behind up-to-date firewall and intrusion prevention technology. Potential participants first read a statement describing the purpose of the study and how the responses to the questionnaire would be utilized. They could then choose to complete an Informed Consent Form (See Appendix II *Informed Consent*). Once the potential participant completed the Informed Consent form they were forced to choose to continue or quit. In order to continue, they needed to

affirm their choice by clicking on a **Continue** button; otherwise, they were thanked and automatically exited from the site. Those who chose to continue then began the survey (See Appendix III *Survey*).

Instruments

This survey incorporates those scales used by Thompson and Gullone (2008) with the addition of the final measure, the Lexington Attachment to Pets Scale. The scales include the Inventory of Parent and Peer Attachment-Revised (IPPA-R; Gullone and Robinson 2005) measure (28 items) , the Index of Empathy for Children and Adolescents (IECA; Bryant 1982) measure (22 items), the Strengths and Difficulties Questionnaire (SDQ; Goodman (1997) measure(25 items), Children's Treatment of Animals Questionnaire (CTAQ; Thompson and Gullone 2003) measure (13 items), the Children and Animals Inventory (CAI: Dadds et al. 2004) measure (13 items), and the Lexington Attachment to Pets Scale (LAPS; Johnson, Garrity, and Stallones 1992) measure (23 items). The decision regarding the order of the measures was based on the judgment of the researcher concerning the amount of disclosure of cruel or abusive treatment required. The measure requiring the most disclosure of cruelty or abuse was placed fifth. The final measure examined attachment to a companion animal.

Participants

A coding system was utilized that assigned a number (code) for each participant who agreed to be part of the study. Only the codes were used in managing the data. This coding system was created protect participant's identity. No names were associated with any of the coded forms. All responses were confidential. Those who started the survey

but opted out before or after the Informed Consent were deleted, thereby further scrambling the identity of any participant. The student could opt out at any time by signing off. That person's data would be included up to that point. If the student completed the survey to the end, he or she would be directed as to how to enter the drawing for a laptop computer.

Of the 1806 students at FRCC, Westminster admitted (but not necessarily registered) in this age range, 302 students (17%) began the survey. One hundred sixty nine completed the Informed Consent and moved on to question 1 (61%). Of these 169 answered the question about age;, 25.4% (N=43) were age 18, 33.1% (N=56) were age 19, and 41.4% (N=70) were age 20. One hundred seventy one answered the gender and year in school question; 38.6% (N=66) were male and 61.4% (N=105) were female. Of these 171, 58.5% (N=100) were in their first year in college while 30.4% (N=52) were in their second year; 10.5% (N=18) were third year students and 0.6% (N=1) were more than fourth year; there were no third year students in the sample. . Of the 169 respondents who answered about pet ownership, 85.8% (N=145) have a pet now. The majority of the 159 who responded as to what kind of pet, 72.3% (N = 115)have a dog. The number of respondents dropped from 170 (question 9, "I had the following pets as a child") to 142 on question 10 that began the surveys. This number varied between 131-142 responding throughout the survey, with 120 answering all questions. Upon completion of the survey, 103 respondents clicked on the interviewer's site to enter the raffle for a computer. They sent their names and email address and/or phone number. From these respondents, a

name was pulled out of a hat and the computer was given to that student. All names and identifying information was then destroyed.

Measures

Inventory of Parent and Peer Attachment-Revised (IPPA-R; Gullone and Robinson 2005)

Parental attachment was assessed using the youth self-report measure to assess affective and cognitive dimensions of the older adolescents' relationship with their parents. The IPPA-R measures three aspects of attachment-related constructs including trust, communication, and alienation. The Trust scale measures the degree of an attachment figure's availability and responsiveness to participants' needs (e.g. "my parents respect my feelings"). The Communication scale measures the extent of open communication with attachment figures (e.g. "my parents support me to talk about my worries"). The Alienation scale assesses the extent of emotional reaction to unresponsive or inconsistently responsive attachment figures (e.g. "no one understands me"). The IPPA-R utilizes a three point Likert scale: "Always true" (score = 3), "Sometimes true" (score = 2), and "Never true" (score = 0) to rate each of the 28 items assessing perceptions of attachment to parents and total attachment scores range from -22 to 34, with higher scores reflecting a more secure attachment relationship with parents.

Thompson and Gullone (2008) report Cronbach's alpha coefficients for the Trust, Communication and Alienation subscales of the parent scale as .89, .85, and .81, respectively. In the current study, the Cronbach's alpha coefficients were comparable to

those reported in Thompson and Gullone with coefficients of .91, .90, and .83 respectively.

Index of Empathy for Children and Adolescents (IECA; Bryant 1982)

Empathy was assessed using the IECA as this was the empathy scale used by Thompson and Gullone (2008). Bryant developed the scale from Mehrabian and Epstein (1972)'s adult scale and validated it with 56 first graders, 115 fourth graders and 87 seventh graders. Alpha coefficients in that study ranged from .54 for first graders, .68 for fourth graders, to .79 for seventh graders (Bryant, 1982, p. 419).

The scale consists of 22 items designed to assess human empathic tendencies in participants, such as "It makes me sad to see a girl who can't find anyone to play with" and "Boys who cry because they are happy are silly". A modification of the scale was completed to better identify situations more congruent with 18-20 year olds, for example, "I get upset when I see a woman being hurt", "I get upset when I see an animal being hurt", "and People sometimes cry even when they have nothing to cry about". Participants endorse the response, "Yes" (score = 1) or "No" (score = 0) that best applies to them. There were eleven items requiring reverse scoring, "Yes" (score = 0) or "No" (score = 1). Total scores range from 22 to 88 and higher scores reflect greater empathy.

Thompson and Gullone (2008) reported a Cronbach's alpha of .72 demonstrating adequate internal consistency. In the present study, the initial analysis of alpha (.37) did not demonstrate adequate internal consistency for this population of college students. The scale was modified a second time by running the reliability and a factor analysis. The scale was first run with all 22 items and resulted in an alpha of .37. Items 2, 10, 18, 20,

21, and 22 were removed as they all had a negative item scale correlation meaning the item doesn't correlate with the other instrument items thus not measuring the same construct and the alpha increased to .59. Items 3, 9, and 17 were then removed as they all had a negative item scale correlation and the alpha increased to .68. Item 16 was then removed as it had a negative item scale correlation, removing the last of the items with negative item scale correlations, and the alpha increased to .69. Finally, item 6 was removed as it had a weak item scale correlation and the alpha increased to .70 and all items correlated at .1 or above. An exploratory principal axis factor analysis was conducted to assess the underlying structure for the eleven remaining items of the empathy scale. An exploratory factor analysis seeks to describe and summarize data by grouping together correlated variables. The sample size this study is a limiting factor. Four factors were extracted. As indicated in the chart below, variables were not well defined by this factor solution. Communality values tended to be low. With a cut off of .45 (loadings under .45 or 20% of variance) for inclusion of a variable in interpretation of a factor, six of the eleven variables did not load on any factor. Failure of numerous variables to load on a factor reflects heterogeneity of items. Table 1 displays the items and factor loadings for the rotated factors.

Table 1

Factor Loadings for the Rotated Factors

Item	Factor Loading				
	1	2	3	4	Communality
It makes me sad to see a man with no friends	.901				.560
It makes me sad to see a woman with no friends	.713				.473
I really like to watch people open presents, even when I don't get a present myself	.				.143
Seeing a woman cry makes me feel like crying		.869			.519
Seeing a man cry makes me feel like crying		.649			.523
Even when I don't know why someone is laughing, I laugh too					.124
Some songs make me so sad I feel like crying			.708		.305
Sometimes I cry when I watch TV					.210
People sometimes cry even when they have nothing to be sad about					.067
I get upset when I see a man being hurt			.723		.241
I get upset when I see an animal being hurt					.059

(See Appendix V, *IECA*).

Strengths and Difficulties Questionnaire (SDQ; Goodman (1997)

This is a brief behavioral screening questionnaire that asks about 25 attributes, some positive and others negative. The 25 items are divided between five scales of five items each, generalizing scores for conduct problems, hyperactivity, emotional symptoms, peer problems and prosocial behavior; all but the last one are summed to

produce a total difficulties scale. Only the prosocial scale was utilized for the Thompson and Gullone (2008) study and the present study.

Respondents are asked to indicate how much the attribute applies to them on a three-point Likert scale, "Not true" (score = 0), "Somewhat true" (score = 1) or "Certainly true" (score = 2). The statements on the Prosocial behavior scale are: "I try to be nice to other people. I care about their feelings", "I usually share with others", "I am helpful if someone is hurt, upset or feeling ill", "I am kind to younger people", and "I often volunteer to help others". The scores for the scale is generated by summing the scores for the five items that make up that scale, generating a scale score ranging from 0 to 10; the higher the number, the greater the prosocial behavior.

Thompsons and Gullone (2008) report a Cronbach's alpha coefficient for the Prosocial Behavior Scale of .66. In the present study, a Cronbach's alpha coefficient of .60was found, demonstrating adequate internal consistency. These coefficients are comparable to those obtained by Thompson and Gullone (2008) (See Appendix VI, *SDQ*).

Children's Treatment of Animals Questionnaire (CTAQ; Thompson and Gullone 2003)

This instrument was used to assess the humane treatment of companion animals. This measure was developed initially to assess children's attitudes and behavior toward animals and consists of 13 behavioral items, such as "Play with", "Cuddle", "Groom", "Tell my secrets to". For each item, the respondents were asked to indicate whether they "Often" (score = 3), "Sometimes" (score =2), or "Never" (score =1) engaged in that

particular activity. Those with no companion animals were instructed to answer in relation to other people's companion animals or to imagine that they had companion animals and answer the questions accordingly.

Responses are scored such that higher scores reflect higher levels of humane behavior toward animals. Only one item (i.e. "Yell at") required reverse scoring ("Often" = 1, "Sometimes" = 2, and "Never" = 3) as it measured cruel behavior toward animals.

In the Thompson and Gullone (2008) study, a Cronbach's alpha coefficient of .82 was reported. In the current study, a Cronbach's alpha coefficient of .81 was obtained. This is nearly identical to that reported by Thompson and Gullone (2008) (See Appendix VII, *CTAQ*).

Children and Animals Inventory (CAI: Dadds et al. 2004)

The CAI was developed as a brief parent and self report measure of F.R. Ascione's (1993) nine parameters of cruelty (Dadds et al., 2004, p. 321). Nine theory driven aspects of cruelty are assessed: (1) severity (degree of intentional pain and injury caused to an animal), (2) frequency (number of separate acts of cruelty), (3) duration (period of time over which cruel acts occurred), (4) recency (the most recent acts), (5) diversity across and within categories (number of animals abused from different categories and the number of animals harmed from any one category), (6) sentience (level of concern for the abused animal), (7) covertness (individual's attempts to conceal the behavior), (8) isolation (whether the cruelty occurred alone or with others), and (9) empathy (the degree of the individual's remorse for the cruel acts) (ibid., p. 322).

The 13 CAI items are assessed on a Likert scale with the exception of the last item which requires a written response; the last item was not included in the current study. Items include “Have you ever hurt an animal on purpose” with scores that range from “Never” (score = 0), “Hardly ever” (score = 1), “A few times” (score = 2), “Several times” (score = 3), and “Frequently” (score = 4); “When was the last time you hurt an animal on purpose?” with scores that range from “I have never hurt an animal” (score = 0), “More than a year ago” (score = 1), “Less than one year ago but more than six months ago” (score = 2), to “in the last six months” (score = 3). While the scales vary, the total level of cruelty is assessed by adding together scores from eleven items; the higher the summative score, the higher the level of cruelty.

In the Thompson and Gullone (2008) study, a Cronbach’s alpha coefficient of .93 was reported. In the present study, an alpha coefficient of .81 was obtained (See Appendix VIII, *CAI*).

Lexington Attachment to Pets Scale (LAPS; Johnson, Garrity, and Stallones 1992*)*

This scale was included in the present study. The LAPS is a 23-item scale in which participants are asked to agree or disagree to statements that measure attachment to animals on a five point Likert scale from “Disagree strongly” (score = 1), “Disagree somewhat” (score = 2), “Agree somewhat” (score = 3), to “Agree strongly” (score = 4); there is an option of “Don’t know or refuse to answer” (score = 0). Two items, “I think my pet is just a pet” and “I am not very attached to my pet”, required reverse scoring (“Agree strongly” = 1, “Agree somewhat” = 2, “Disagree somewhat” = 3, “Disagree strongly” = 4 and “Don’t know or refuse to answer” = 0) as they measured lack of

attachment to a companion pet. This scale yielded a Cronbach's alpha of .93 by Johnson et al., in 1992. In the current study, a Cronbach's alpha coefficient of .94 was obtained (See Appendix IX, *LAPS*).

Procedure

Before the initiation of any data gathering activities, official approval from the University of Denver's Institutional Review Board for the Protection of Human Subjects was granted. In addition, all proposals for client participation in human subject research was reviewed and approved by Front Range Community College. Initially Front Range Community College indicated they would offer the registration roster for students ages 18-20 to allow for random sampling. Once the University of Denver's Institutional Review Board approved the study, Front Range retracted this option and allowed only an email sent to students through the school email inviting them to participate in the study. Interested students signed onto the researcher's **SurveyMonkey** site. Data were collected through **SurveyMonkey** and sent to the researcher through her account. It was collected onto an excel document that was then transferred to SPSS by the researcher and coded according to the scales' authors.

Following Thompson and Gullone (2008)'s procedure, this section begins with an overview of data screening and cleaning to ensure that the assumptions of multiple regression analyses were met. Next, the results of correlation analyses are presented to illustrate the strength of the associations between the predictor and outcome variables. Both standard multiple regression and hierarchical multiple regression analyses were conducted to investigate the predictive value of parental attachment for each of the

outcome variables. This study also investigates the predictive value of companion pet attachment for each of the outcome variables and the mediating role of companion pet attachment in these relationships.

Assumptions of Multiple Regression Analyses

An adequate sample size (N = 120) was obtained for the purpose of conducting multiple regression analyses with three independent variables. Tabachnick and Fidell (2001) recommend a sample size of $N \geq 50 + 8m$ (with m = number of IVs) or 74 for testing the multiple correlations and $N \geq 104 + m$ or 107 for testing individual predictors.

Following Thompson and Gullone (2008), at the conclusion of data collection the data were screened for missing data and then examined for the presence of univariate outliers. Tabachnick and Fidell (2001) define *univariate outliers* as cases with an extreme value on one variable. Among dichotomous variables, these cases are fairly easy to spot as they are on the "wrong" side of an uneven split. Among continuous variables univariate outliers are cases with very large standardized scores (*z* scores) on one or more variables that are disconnected from the other *z* scores; those in excess of 3.29 ($p < .001$, two tailed test) are potential outliers. However, the sample size makes a difference. With a large sample size there very likely will be standardized scores in excess of 3.29 (pp. 67-68). Therefore, for this study (as with Thompson and Gullone (2008)) graphical methods for finding outliers were utilized, such as descriptive statistics, histograms, box plots, and standardized residual plots.

The data were then screened for multivariate outliers. Following Tabachnick and Fidell (2001) suggestions to see if univariate outliers are also multivariate outliers before

deciding what to do with them, the Mahalanobis distance was calculated for each of the 140 cases. The Mahalanobis distance is the distance of a case from the *centroid* of the remaining cases. The *centroid* is the point created at the intersection of the means of all the variables. Tabachnick and Fidell (2001) report that in most data sets, the cases form a swarm around in the centroid in multivariate space and that each case is represented in the swarm by a single point at its own peculiar combination of score on all of the variables except an outlier which lies outside the swarm, some distance from the other cases. The Mahalanobis distance is one measure of that multivariate distance and it can be evaluated for each case using the *X2* distribution. Thompson and Gullone (2008) conducted a regression analysis using two independent variables (parental attachment and empathy); this study used three independent variables (empathy, parental attachment and companion pet attachment). Extreme values were identified through examination of descriptive statistics, boxplots, histograms, and standardized residual plots.

Following data cleaning, the data were assessed for normality. Normality of variables is assessed by either statistical or graphical methods. Two components of normality are skewness or kurtosis. Skewness has to do with the symmetry of the distribution and is important in understanding whether a variable is normally distributed, that is, how much a variable's distribution deviates from the distribution of the normal curve. Kurtosis has to do with the peakedness of a distribution. When a distribution is normal the values of skewness and kurtosis are zero. For small samples alpha levels are used to evaluate the significance of skewness and kurtosis; in a large sample, a variable

with statistically significant skewness does not deviate enough from normality to make a substantive difference in the analyses (Tabachnick and Fidell, 2001).

The relationship between the independent variables was also assessed with respect to muticollinearity and singularity. Multicollinearity occurs when there are high intercorrelations among two or more of the predictor variables, that is, two or more predictors contain overlapping information. Singularity occurs when two or more of the predictor variables are combined into another variable. The assumptions of multiple regression and analyses were re-checked through inspection of SPSS output for each multiple regression analysis.

Correlation Coefficients between the Predictor and Outcome Variables to Investigate the Strength of Relationships

The results of Pearson's product-moment correlations were also examined before conducting the multiple regression analyses in order to examine the size and direction of the linear relationship between two variables.

Multiple Regression Analyses to Investigate the Relationships between the Predictor and Outcome Variables

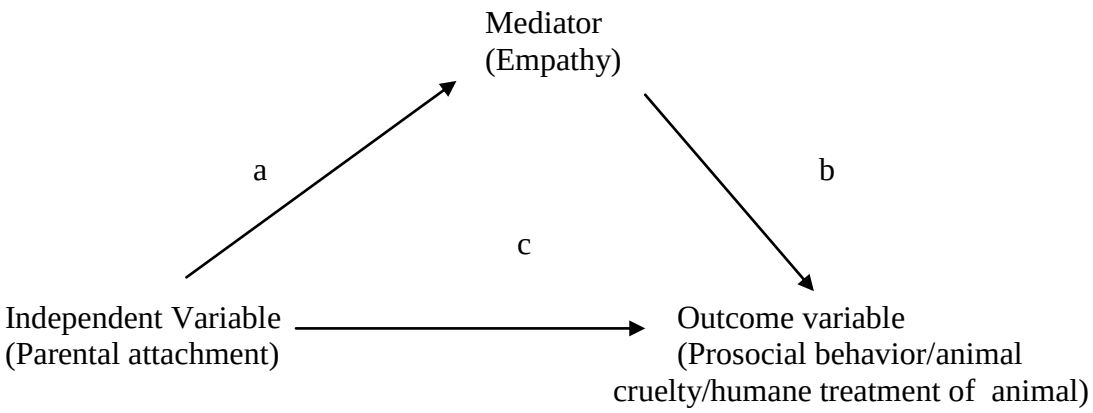
Regression is used to predict a score on one variable from a score on the other. The goal of regression is to arrive at the set of β values, called regression coefficients for the independent variables that bring the Y values predicted from the equation as close as possible to the Y values obtained by measurement. The regression coefficients that are computed accomplish two goals: they minimize (the sum of the squared) deviations

between predicted and obtained Y values and they optimize the correlation between the predicted and obtained Y values for the data set.

Standard multiple regression is run to assess the degree of the relationships between the dependent variables and the independent variables, the proportion of variance in the dependent variable predicted by regression, and the relative importance of the various independent variables to the solution. Multiple regression was conducted to determine the best linear combination of empathy, parental attachment and companion pet attachment for predicting (a) humane treatment of animals, (b) prosocial behavior, and (c) animal cruelty. [Assumptions of linearity, normally distributed errors, and uncorrelated errors were checked and met for (a) and (b).]

An investigation was then conducted as to whether empathy fully mediated relationships between attachment and the outcome variables used by Thompson and Gullone (2008).

Following Thompson and Gullone (2008), an investigation was conducted as to whether empathy fully mediated relationships between attachment and the outcome variables they used, prosocial behavior, humane treatment of animals and animal cruelty. A given variable may be said to function as a mediator to the extent that it accounts for the relation between the predictor and the criterion (Baron & Kenny, 1986). The path diagram for testing mediation in this study is as follows:



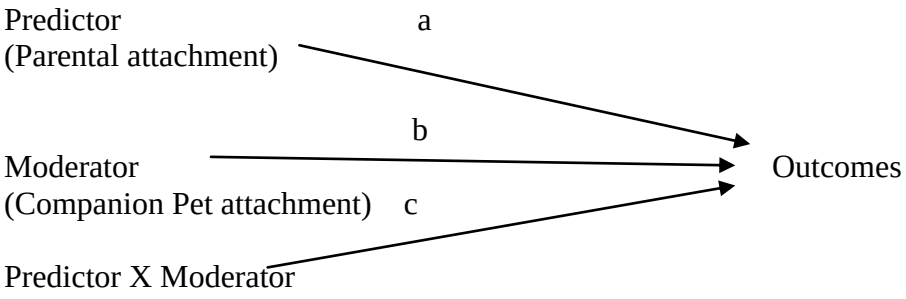
The criterion include the following: (a) variations in the levels of the independent variable significantly account for variations in the presumed mediator (Path a), (b) variations in the mediator significantly account for variations in the dependent variable (Path b), and (c) when paths 'a' and 'b' are controlled, a previously significant relationship between the independent and dependent variables is no longer significant, with the strongest demonstration of mediation occurring when path c is zero (Baron & Kenny, 1986). This is difficult to do in the social sciences; Baron and Kenny (1986) suggest that the goal may be to seek mediators that significantly decrease path c rather than eliminating the relation between the independent and dependent variables altogether. A significant reduction demonstrates that a given mediator is powerful, though not both a necessary and a sufficient condition for an effect to occur.

Thompson and Gullone (2008) determined that four necessary criteria were met, that is, (a) attachment was significantly associated with empathy, (b) empathy was significantly associated with the outcome variable, (c) attachment was significantly associated with the outcome variable, and (d) attachment was not associated with the outcome variable after empathy was controlled. A series of multiple regression analyses

were run with this data; first, the mediator was regressed on the independent variable; secondly, the dependent variable was regressed on the independent variable; and, finally, the dependent variable was regressed on both the independent variable and on the mediator.

Investigating Moderator Effects of Companion Pet Attachment

Moderation implies that the causal relation between two variables changes as a function of the moderator variable. The statistical analysis must measure and test the differential effect of the independent variable on the dependent variable as a function of the moderator (Baron & Kenny, 1986). It is desirable that the moderator variable is uncorrelated with both the predictor variable and dependent variable and that it is also an independent variable. The path diagram for testing moderator effects for this study is as follows:



A bivariate analysis of variance was computed and evaluated for interaction.

CHAPTER 4

RESULTS

This section begins with an overview of data screening to ensure that the assumptions of multiple regression analyses were met. This is followed by the results of correlation analyses presented to illustrate the strength of the associations between the predictor and outcome variables. Standard multiple regression was subsequently conducted to investigate the predictive value of the predictors for each of the outcome variables in addition to determining the moderating role of companion pet attachment.

Assumptions of Multiple Regression Analyses

As previously reported in Chapter 3, an adequate sample size (N=120) was obtained for the purpose of conducting multiple regression analyses with three independent variables. To determine whether there were univariate outliers, graphical methods were utilized, such as descriptive statistics, box plots, histograms, and standardized residual plots. The assumptions of multivariate normality and linearity were evaluated through SPSS. Included in the regression output are descriptive statistics, including a correlation table, the values of R, R2, and adjusted R2, and a summary of the analysis of variance for regression.

For the variable, ‘Animal Cruelty, the mean was very low which was expected as most students reported no animal cruelty. For this variable, of the total number of respondents (N=120), 82.9% (N=102) reported they never hurt an animal on

purpose, 9.8% reported they “hardly ever” hurt an animal on purpose (N=12), 3.3% (N=4) “a few times”, .8% (N=1) reported “several times”, and .8% (N=1) reported “frequently”. The number of times an animal was hurt on purpose again clustered together on zero times , that is, 83.7% (N=103) with 6.5% (N=8)reporting “once or twice”, 2.4% (N=3) reporting “3-6 times” and 4.9% (N=6) reporting more than six times. However, when asked which animals they have been cruel to, the number reporting “none” dropped to 28.5% of the 123 respondents (N=35). Worms and insects had the highest likelihood of being abused (20.3%, N=25), followed by birds of mammals (2.4%, N=3), and fish, lizards or frogs (.8%, N=1). However, 4.1% (N=5) reported harming both worms and insects and birds and mammals; and, .8% (N=1) reported harming fish, lizards, and frogs and birds and mammals.

Table 1

Range, Minimum, Maximum, and Mean Value for Independent and Dependent Variables

	Descriptive Statistics				
	N	Range	Minimum	Maximum	Mean
Prosocial Behavior	119	10.00	.00	10.00	7.81
Humane treatment scale	116	24.00	1.00	25.00	17.40
Companion Pet Attachment score	107	67.00	24.00	91.00	68.92
Parental Attachment Scale	117	49.00	-16.00	33.00	17.11
Empathy	117	9.00	2.00	11.00	7.94
Animal Cruelty	120	23	.00	23.00	2.57

There was one outlier for the 'Prosocial Behavior' scale identified by boxplots; no outliers for the empathy scale; one outlier identified for the human treatment scale, one outlier for the parental attachment scale; no outliers for the companion pet attachment scale; and eleven outliers for the animal cruelty scale. There were no extreme outliers for any scale.

The data were also screened for multivariate outliers utilizing Mahalanobi's Distance. Linear regression was run with each dependent variable, Animal cruelty, Humane Treatment of Animals, and Prosocial Behavior. New variables were created for the above dependent variables, CAI_01, CTAQ_01, and PB_01 respectively. The possibility of multivariate outliers was explored by looking at the probability of the Mahalanobis Distance. Cases with the probability of $D2 < 0.001$ were considered outliers. No multivariate outliers were detected in the dataset.

According to Tabachnick and Fidell (2001) extreme outliers have too much impact on the regression solution and affect the precision of estimation of the regression weights, which do not generalize well to population values and outliers should therefore be deleted, rescored, or the variable transformed. Since animal cruelty is positively skewed (skewness = 2.346), this researcher chose to try to transform the data to another scale where a reasonable assumption of normality could be made. Leech et al. (2008) suggest a log X transformation to reduce the positive skew. Both transformations were completed via SPSS; however after the transformation, the skewness = 2.346 indicating no change.

All variables were assessed for normality utilizing histograms of distribution.

Histograms of distributions revealed that the variables were slightly skewed in the expected direction. Animal cruelty in this study, as in Thompson and Gullone's (2008) study, was significantly skewed as a result of the majority of participants scoring zero. There was no indication of kurtosis. Like Thompson and Gullone's (2008) study, the population was nonclinical and those variables measuring positive constructs (e.g. positive attachment to parents, positive attachments to companion animals, empathy, and the humane treatment of animals) were negatively skewed while the variable (i.e. animal cruelty) measuring a negative construct was positively skewed.

The correlation coefficient was calculated to determine the strength of the associations between the three independent variables. (See Table 2.)

Table 2

Correlations between predictors

		Companion Pet Attachment	Parental Attachment	Empathy
Companion Pet Attachment	Pearson Correlation	1.00	.01	.31**
	Sig. (2-tailed)		.88	.00
	N	107	104	105
Parental Attachment	Pearson Correlation	.01	1.00	.15
	Sig. (2-tailed)	.88		.11
	N	104	117	114

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

This part of the analysis was completed to rule out muticollinearity and singularity. The correlation coefficient calculated to determine the strength of the association between companion pet attachment and empathy was significant and positive (*r=.31, p <0.05)*; however, it is not suggestive of muticollinearity.

Correlation Coefficients between the Predictors and Outcome Variables

Prior to conducting the multiple regression analyses, the results of Pearson's product moment correlations were examined. The correlation coefficients, which demonstrate the strength of the associations between the predictors and outcome variables, are shown below in Table 3.

Table 3

Correlations between the predictor and outcome variables

		Companion Pet Attachment	Parental Attachment	Empathy
Animal Cruelty	Pearson Correlation	-.12	-.11	-.16
	Sig. (2-tailed)	.21	.23	.07
	N	107	117	117
Humane Tx of Animals	Pearson Correlation	.65**	.10	.30**
	Sig. (2-tailed)	.00	.35	.001
	N	103	113	113
Prosocial Behavior	Pearson Correlation	.25**	.13	.36**
	Sig. (2-tailed)	.01	.15	.00
	N	106	116	1

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

The association between prosocial behavior and companion pet attachment was found to be significant and positive (*r = .25, p < .01*) as was the association between prosocial behavior and empathy (*r = .36, p < .001*), as well as prosocial behavior and humane treatment of animals (*r = .309, p = .001*). The association between humane treatment of animals and companion pet attachment was significant (*r=.65, p < .001)* as was the association between humane treatment of animals and empathy (*r= .30, p = .001).* The association between companion pet attachment and empathy was found to be significant and positive *(r = .31, p < .01).* There is no significant association between

animal cruelty, companion pet attachment, or empathy. However, this lack of correlation is understandable given the large number of outliers for the animal cruelty construct.

This study inspected bivariate scatterplots and found the variables, humane treatment of animals and parental attachment, humane treatment of animals and companion pet attachment, humane treatment of animals and empathy, and the variables, prosocial behavior and companion pet attachment, prosocial behavior and empathy, and the variables prosocial behavior and parental attachment to be relatively normally distributed and linearly related. Additionally a scatterplot matrix of the standardized residuals was run and the residuals were shown to be roughly rectangularly distributed in all instances of association.

Multiple Regression Analyses to Investigate the Relationships between the Predictor and Outcome Variables

A series of multiple regression analyses was conducted in which each of the three variables, parental attachment, empathy, and companion pet attachment was entered as the predictor variable. These analyses aimed to determine whether parental attachment, empathy, and companion pet attachment were significantly associated, and whether they were also associated with each of the outcome variables, as shown in the following tables.

Table 4.1

Standard multiple regression analyses between humane treatment of animals (as the dependent variable), parental attachment, empathy, and companion pet attachment. (N=98)

Model	Sum of Squares	Df	R^2	Adj R^2	Mean Square	F	Sig
Regression	788.29	3	.43	.41	262.76	23.64	.001
Residual	1044.77	94			11.11		

Variable	Sig	β	t
Parental attachment	8.65	.04	.46
Companion pet attachment	.00	.63	7.67
Empathy	.50	.06	.68

Table 4.1 displays the correlations between the variables, the unstandardized regression coefficients and intercept, the standardized regression coefficients (β), R2 and adjusted R2. In the first analysis, the combination of variables significantly predicted humane treatment, F (3, 94) = 23.64, $p < .001$ with both variables contributing to the prediction. The adjusted R^2 value was .43 indicating that of the variance in humane treatment of animals 43% can be predicted from the independent variables. The beta weights presented in the above table suggest that only companion pet attachment contributed to predicting humane treatment of animals. However, all the variables need to

be included to obtain this result, since the overall F value was computed with all the variables in the equation.

Table 4.2

Standard multiple regression analyses between prosocial behavior (as the dependent variable) and parental attachment, empathy, and companion pet attachment. (N=101)

Model	Sum of Squares	Df	R2	Adj R2	Mean Square	F	Sig
Regression	54.25	3	.18	.15	18.08	6.89	.000
Residual	254.54	97			2.62		

Variable	Sig	β	t
Parental attachment	.41	.08	.82
Companion Pet attachment	.11	.15	1.60
Empathy	.001	.33	3.33

In the second analysis, the combination of variables significantly predicted prosocial behavior $F(3, 97) = 6.89$, $p < .001$. The adjusted R^2 value was .15, indicating that 15% of the variance in prosocial behavior can be predicted from the independent variables. The beta weights presented in the above table suggest that empathy is the only variable predicting prosocial behavior though all variables need to be included to obtain this result, since the overall F value was computed with all variables in the equation.

Table 4.3

Standard multiple regression analyses between animal cruelty (as the dependent variable) parental attachment, empathy, and companion pet attachment. (N = 102)

Model	Sum of Squares	Df	R2	Adj R2	Mean Square	F	Sig
Regression	233.89	3	.07	.04		.07	
Residual	3118.41	98					

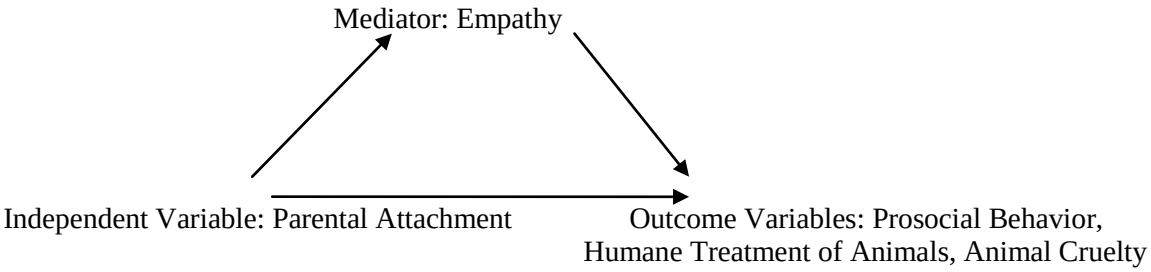
Variable	Sig	B	t
Parental attachment	.39	-.08	-.86
Companion Pet attachment	.56	-.06	-.58
Empathy	.04	-.21	-2.09

In the third analysis, the combination of variables did not significantly predict animal cruelty, F (3, 98) = .07.

A given variable may be said to function as a mediator to the extent that it accounts for the relation between the predictor and the criterion (Baron & Kenny, 1986). The path diagram for testing mediation in this study is as follows:

Figure 1

Mediator Model



To investigate whether empathy fully mediated relationships between attachment and the outcome variables, the four necessary criteria were explored. The criterion include the following: (a) variations in the levels of the independent variable (parental attachment) significantly account for variations in the presumed mediator (empathy) [path *a*]; (b) variations in the mediator (empathy) significantly account for variations in the dependent/outcome variables (prosocial behavior, humane treatment of animals, and animal cruelty) [path *b*], and (c) when paths '*a*' and '*b*' are controlled, a previously significant relationship between the independent and dependent variables are no longer significant, with the strongest demonstration of mediation occurring when path *c* is zero (Baron & Kenny, 1986).

First, a series of standard multiple regression analyses were conducted in which parental attachment was entered as the predictor variable. These analyses sought to determine whether attachment and empathy were significantly associated and whether attachment was significantly association with each outcome variable as shown in Table 5.

Table 5

Standard multiple regression analyses between parental attachment (as the predictor) and empathy, companion pet attachment, prosocial behavior, humane treatment of animals, and animal cruelty

Variable	R2	Adj R2	Sig	F	SE	β	t
Empathy	.02	.01	.11	2.59	.01	.15	1.60
Prosocial Behavior	.02	.01	.15	2.07	.01	.13	1.44
Humane Tx of Animals	.01	.00	.35	.88	4.59	.08	.93
Animal Cruelty	.01	-.00	.37	.81	4.85	.11	.90
Companion Pet Attachment	.00	-.01	.88	.02	.14	.01	.15

The findings in Table 5 are consistent with the results of the Pearson's product moment correlations in Table 2, that is, parental attachment is not significantly positively correlated with empathy or any of the other outcome variables; thus, criterion (a) is not satisfied.

Hierarchical multiple regression analyses were then conducted to assess whether empathy was significantly associated with the outcome variables [criterion (b)], and whether attachment was no longer significantly associated (or significantly less associated) with the outcome variables, once empathy was controlled [criterion (d)]. This

was achieved by entering empathy at the first step and attachment at the second (see Table 6).

Table 6

Hierarchical multiple regression analyses, using attachment and empathy as predictors of humane treatment of animals, prosocial behavior, and animal cruelty.

Analyses	R2	Adj R2	R2 change	F	F change	SE	β	T	Sig
Step 1: Empathy	.09	.09	.10	11.84	11.84	.18	.31	3.44	.001
Step 2:									
Empathy	.10	.08	.01	5.29	.09	.18	.31	3.34	.001
Attachment						.04	.03	.31	.757
Step 1: Empathy	.13	.13	.13	17.18	17.18	1.58	.37	4.14	.000
Step 2:									
Empathy	.14	.12	.00	8.87	.62	1.58	.36	3.97	.000
Attachment							.07	.79	.432
Step 1: Empathy	.03	.02	.03	3.36	3.36	5.56	-.17	-1.83	.07
Step 2:									
Empathy	.036	.02	.01	2.06	.77	5.56	-.16	-1.68	.096
Attachment							-.08	-.88	.382

In the first analysis, the humane treatment of animals was entered as the outcome variable and empathy (Step 1) and parental attachment (Step 2) as the predictor variables. The

analyses indicated that the contributions of empathy (β = .31) and parental attachment (β = .03) were statistically significant at the p<.001 level and positively associated with the humane treatment of animals, explaining 10% of the variance in this outcome variable. When empathy was entered by itself, it was a significant predictor of humane treatment F (1,108) = 11.84, p < 001. However, the unique contribution of parental attachment was nonsignificant (p = .76) when the overlapping effect of empathy was removed.

In the second analysis, prosocial behavior was entered as the outcome variable and empathy (Step 1) and parental attachment (Step 2) as the predictor variables. The analyses indicated that the contributions of empathy (β = .36) and parental attachment (β = .07) were statistically significant at the p<.001 level and positively associated with the prosocial behavior, explaining 13% of the variance in this outcome variable. When empathy was entered by itself, it is a significant predictor of prosocial behavior F (1,111) = 17.18, p < .001. However, the unique contribution of parental attachment was nonsignificant (p = .43) when the overlapping effect of empathy was removed.

In the third analysis, animal cruelty was entered as the outcome variable and empathy (Step 1) and parental attachment (Step 2) as the predictor variables. The analyses indicated that the contributions of empathy and parental attachment were not statistically significant with p = .07 and p = .38 respectively.

Thus, upon investigation as to whether empathy fully mediated relationships between attachment and the outcome variables, we determined that criterion (a) was not met, criterion (b) was met for humane treatment of animals and prosocial behavior but not for animal cruelty, criterion (c) was not met, and criterion (d) was met for all three

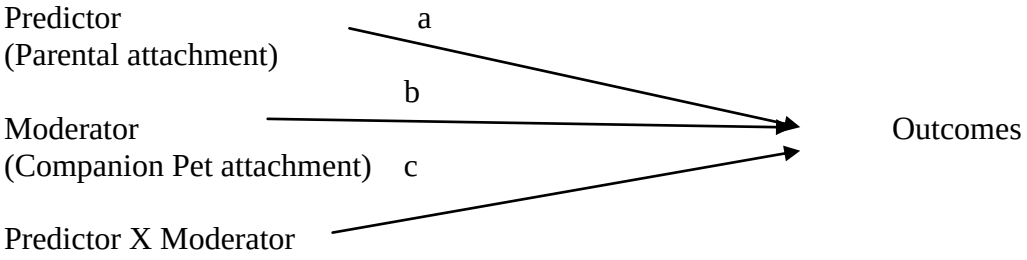
outcome variables. Therefore, empathy does not fully mediate the relationships between attachment and the outcome variables.

Investigating Moderator Effects of Companion Pet Attachment

Moderation implies that the causal relation between two variables changes as a function of level of the moderator. According to Baron and Kenny (1986), a common framework for capturing both the correlational and the experimental views of a moderator variable is by using a path diagram as both a descriptive and an analytic procedure, such as the one depicted in Figure 2 below. The model below has three causal paths that feed into the outcome variable of prosocial behavior: the impact of parental attachment as a predictor (Path *a*), the impact of companion pet attachment as a moderator (Path *b*), and the interaction or product of these two (Path *c*). The moderator hypothesis is supported if the interaction (Path *c*) is significant. There may also be significant main effects for the predictor and the moderator (Paths *a* and *b*), but these are not directly relevant conceptually to testing this moderator hypothesis. Additionally, it is desirable that the moderator variable be uncorrelated with both the predictor and the criterion (the dependent variable) to provide a clearly interpretable interaction term.

Figure 2

Moderator Model



The first statistical analysis measures and tests the differential effect of the independent variable (parental attachment) on the dependent variable (prosocial behavior) as a function of the moderator (companion pet attachment) using a 2 X 2 ANOVA ; moderation would be indicated by the interaction..

Table 7.1

Tests of between subjects effects with dependent variable, prosocial behavior.

Source	Sum of Squares	df	Mean square	F	Sig.
Parental attachment	4.00	1	4.00	8.00	.216
Companion pet attachment	12.67	2	6.33	12.67	.195
Parental attachment X Companion pet attachment	54.71	16	3.412	6.84	.293
Error	.50	1	.50		
Total	6601.00	103			

*R squared = .998 (Adjusted R squared = .835, computed using alpha = .05)

Table 7.1 shows that there was not a significant interaction between parental attachment and companion pet attachment on prosocial behavior (p = .29). Nor was there a significant main effect of either parental attachment F (1, 1) = 8.00, p = .2 or

companion pet attachment F (2, 1) = 12.67, p = .19 on prosocial behavior. Therefore, companion pet attachment was not a moderator in this analysis.

Table 7.2

Tests of between subjects effects with dependent variable, humane treatment of animals

Source	Sum of Squares	df	Mean square	F	Sig.
Parental attachment	12.25	1	12.25	2.72	.34
Companion pet attachment	54.00	2	27.00	6.00	.27
Parental attachment X Companion pet attachment	117.25	15	7.81	1.73	.54
Error	4.50	1	4.50		
Total	33303.00	100			

*R squared = .998 (Adjusted R squared = .761, computed using alpha= .05)

Table 7.2 shows that there was not a significant interaction between parental attachment and companion pet attachment on humane treatment of animals (p = .54). Nor was there a significant main effect of either parental attachment F (1, 1) = .2.72, p = .34 or companion pet attachment F (2, 1) = 6.00, p =.27 on humane treatment of animals. Therefore, companion pet attachment was not a moderator in this analysis.

Table 7.3

Tests of between subjects effects with dependent variable, animal cruelty

Source	Type III Sum of Squares	df	Mean square	F	Sig.
Parental attachment	9.00	1	9.00	18.00	.14
Companion pet attachment	192.66	2	96.33	192.66	.05
Parental attachment X Companion pet attachment	489.70	17	28.80	57.61	.10
Error	.50	1	.50		
Total	4210.00	104			

*R squared = 1.000 (Adjusted R squared = .985, computed using alpha = .05)

Table 7.3 shows that there was not a significant interaction between parental attachment and companion pet attachment on animal cruelty (p = .10). Nor was there a significant main effect of either parental attachment (F (1, 1) = 18.00, p = .14) or companion pet attachment (F (2, 1) = 192.66, p = .90) on animal cruelty. Therefore, companion pet attachment was not a moderator in this study.

CHAPTER 5

DISCUSSION

The current study investigated the associations between parental attachment, companion pet attachment, empathy, and both positive and negative human- and animal-directed outcome behaviors during young adulthood. This study questioned whether a young adult can develop empathy and exhibit prosocial behavior if not securely attached to a parent; and, whether companion pet attachment could be a moderating variable for insecure parental attachment. The research questions were (1) does parental empathic attachment predict prosocial and antisocial behaviors during older adolescence/young adulthood? and; (2) does pet attachment compensate for low parental attachment? Neither of these hypotheses could be confirmed in this study.

The hypothesis that parental attachment varies directly with empathy, humane treatment of animals, and prosocial behavior and inversely with antisocial behavior (animal cruelty) was not supported by the overall results. Parental attachment was not significantly associated with any of the variables included in the analysis. Companion pet attachment was significantly associated with empathy, humane treatment of animals, and prosocial behavior. Empathy was also significantly associated with the humane treatment of animals and prosocial behavior. All correlations were significant at the .01 level. This

finding is contrary to that of Thompson and Gullone (2008) who reported that empathy and attachment were both significantly positively correlated with each of the prosocial behavior and the humane treatment variables, and significantly negatively correlated with the animal cruelty variable (p. 130).

With respect to the hypothesis that companion pet attachment varies directly with empathy, humane treatment of animals and prosocial behavior and inversely with antisocial behavior (animal cruelty), support was found for the prediction that there would be positive associations between companion pet attachment and empathy and humane treatment of animals; but there was no significant association between companion pet attachment and either parental attachment or animal cruelty.

The regression analyses indicated that the combination of empathy, parental attachment, and companion pet attachment was a significant predictor of humane treatment of animals at the $p<.001$ level. These three predictors were also significant predictors of prosocial behavior at the $p <.001$ level. This was not so for the dependent variable, animal cruelty, where $p = .07$. To predict whether attachment and empathy were significantly associated and whether attachment was significantly associated with each outcome variable, a series of standard multiple regression analyses were conducted whereby parental attachment was entered as the predictor variable. At this point in their study, Thompson and Gullone (2008) ran a hierarchical multiple regression to assess whether empathy was significantly associated with the outcome variables and whether attachment was no longer significantly associated with the outcome variables, once empathy was controlled. Thompson and Gullone (2008) ran three analyses to test for the

possible mediating effect of empathy on attachment for the sample of 12-18 year olds. Their analyses indicated that empathy fully mediated the relationship between attachment and the humane treatment of animals, empathy partially mediated the positive association between attachment and prosocial behavior, and empathy partially mediated the negative association between attachment and prosocial behavior.

The question remains as to whether parental attachment, as tested in these two studies is relevant to the 18-20 year old sample.

Limitations

The low response rate was a major limitation. While there were 1800 students admitted to Front Range Community College (FRCC) in Westminster, Colorado at this time, a lower percentage assumably were registered and/or attending classes at the time of the study. Only those students who read their FRCC email would receive notice of this survey. Also, only those interested in a) the subject matter, b) getting a free laptop, or c) both would respond to the email. Additionally, only those with access to a computer or who felt competent in his or her ability to navigate the websites would respond. Additionally, more than half the respondents dropped out by the end of the survey. In analyzing where they dropped out, this researcher found the majority dropped out at the very beginning, that is, of the 302 who started the survey, 56% (N = 169) signed the Informed Consent and went on to question 1. One could speculate that the Informed Consent disclosed too much information about the study, i.e. animal cruelty, and the potential respondents were not interested. Or, some participants may have felt intimidated by the question to submit their name for the qualitative piece. From this point throughout

until the Animal Cruelty scale, the number of participants remained between 138-160. The number of participants dropped to 120 at the Animal Cruelty scale, which might have been an uncomfortable survey for those who engaged in this behavior. Additionally, this scale asked the same question repeatedly and, for those who do not engage in animal cruelty, there was no way to opt out of answering these questions.

This study intended to include a qualitative piece. Those who agreed to be interviewed (N = 90) were contacted via email and telephone in June 2010. Fifteen indicated they were unavailable. Seventy-two did not respond to the phone call or contact via email. Three agreed to meet; however, two cancelled and this researcher met with one person. The qualitative piece subsequently was dropped.

Another limitation relates to the empathy scale used in this study. In an attempt to be true to the Thompson and Gullone (2008) study, the Index of Empathy for Children and Adolescents (IECA; Bryant 1982) was used. This scale has not been used with college age students before; and, while the scale was modified, it still did not perform as predicted. Eleven items were dropped and a smaller set of items (N= 11) were extracted with an acceptable alpha. Other scales might be better predictors of empathy for this sample of college aged students, such as Davis's Interpersonal Reactivity Index (IRI) or Mehrabian and Epstein's Emotional Empathy Scale EES or Balanced Emotional Empathy Scale (BEES).

Davis's Interpersonal Reactivity Index (1983) measures individual differences in empathy, including 28 items tapping four components of empathy- perspective taking, empathic concern, fantasy, and personal distress. According to Davis the perspective

taking subscale measures cognitive empathy while the other three scales measure emotional empathy. The IRI does not calculate an overall value for empathy but rather calculates a separate score for each of the subscales. Taylor and Signal (2005) administered the IRI to 194 undergraduate sociology and psychology students in Australia (ranging in age from 18 to 56 years; mean = 28) along with the Animal Attitude Scale (AAS). They chose the IRI as it reportedly had been constructed with the view that empathy is influenced by environmental events and personal experience. They found that the higher levels of the IRI subscale, Empathic Concern, was related to higher scores on the AAS, indicating a pro-animal attitude. This subscale was the only one with a significant (.33) correlation with scores on the AAS.

Mehrabian and Epstein's Emotional Empathy Scale (EES, 1972) and their Balanced Emotional Empathy Scale (BEES, 1996) measures emotional empathy and has been standardized with counseling college students, FBI staff, adolescents living in group homes and first year medical students. The EES has 33 items and the BEES have 30 items. An important feature of the BEES is that it relates negatively ($r = -.50$) to interpersonal violence (Mehrabian, 1997) which would be useful as this study attempted to identify an association between empathy and animal cruelty. Mehrabian (1997) showed an alpha internal consistency of the BEES of .87. Interestingly, Mehrabian, Young and Sato (1988) reported that those with higher Emotional Empathy Tendency Scale scores were more likely to have had parents who spent more time with them, displayed more affection, discussed feelings and were non-aggressive. Mehrabian (2000) has since developed the Abbreviated Balanced Emotional Empathy Scale and reports a

positive correlation between a high score and emotional success, relationship success, career and financial success and overall life success which would be very applicable to the college aged students in this study. If this researcher were to replicate this study, she would use a scale that differentiated between emotional and cognitive empathy as there is support (Daly & Morton, 2006) for the hypothesis that low cognitive empathy is correlated with animal abusive behaviors. The scale used in this study, and that of Thompson and Gullone (2008) did not address the differences between types of empathy. This researcher explored empathy levels between 18, 19, and 20 year olds to determine if there were differences based on age and found that empathy did increase with age. Thompson and Gullone (2008) did not address this.

Another limitation was the use of the Inventory of Parent and Peer Attachment-Revised (IPPA-R; Gullone and Robinson, 2005). Increasing numbers of studies have focused on competent functioning among college students, though fewer have addressed the association between competency and attachment to parents and peers. There is some research (Fass & Tubman, 2002; McCarthy et al., 2001; Saferstein et al., 2005) supporting this association, though what is often overlooked is the functioning among college students with low levels of attachment to parents and peers. Interestingly, Fass and Tubman (2002) investigated the associations among parent and peer attachment levels in undergraduate students, self perceived functioning and competence, self esteem, sex-role adherence, locus of control, optimism, and academic functioning for 357college students (female = 255, male = 102, ranging in age from 18 to 24 years; M = 20.7). Attachment levels in this study were assessed using the Inventory of Parent and Peer

Attachment (IPPA; Armsden & Greenberg, 1987), a 53-item self-report questionnaire that measures cognitive and affective qualities of attachment to both parents and peers during late adolescence and young adulthood and includes subscales for trust, communication, and alienation. Two attachment scores, one for parents and one for peers, are calculated by adding scores for trust and communication items and subtracting scores for alienation items. In this study, the three subscales demonstrated excellent internal consistency for the Parent Trust (.91), Communication (.90), and Alienation (.75) subscales and for the comparative peer subscales, .92, .86, and .67 respectively; this is comparable to Armsden and Greenberg's 1987 findings of .91, .91 and .86 for Parent subscales and .87, .91, and .72 for Peer subscales.

Other scales have been successfully used for this population, such as the Adult Attachment Measure (AAM; Hazan & Shaver, 1987) and Adult Attachment Interview (AAI; Main & Goldwyn, 1998), and the Continued Attachment Scale (CAS; Berman, Heiss & Sperling, 1994) that focus on assessment of attachment styles. Hazan and Shaver (1987) postulated that adult romantic relationships include an attachment component and classified romantic attachment patterns similar to those identified in infancy by attachment theorists. Thus, secure attachment style was associated, according to Hazan and Shaver, with higher intimacy in romantic relationships and friendships; conversely, insecure attachment, especially avoidance, was associated with lower levels of closeness and intimacy in these relationships. These four scales should be explored for utilization should this study be rerun.

The Children's Treatment of Animals Questionnaire (CTAQ; Thompson and Gullone, 2003) has been standardized with children. For example, Thompson and Gullone (2003) reported that the CTAQ is a valid and reliable measure for assessing the degree to which children's behavior toward nonhuman animals is humane based on self reports by 61 elementary school children (age ranging from 8 to 10 years; M = 9.26). Other scales, such as the Companion Animal Bonding Scale (CABS; Poresky et al., 1987) and the Boat Inventory on Animal Related Experiences (BIARE; Boat, 1994) were also used with children and their parents.

Other instruments, such as the Pet Attitude Scale (PET; Templer et al., 1981) and the Pet Attitude Scale-Modified (Munsell et al., 2004) were validated with college students and might be a better measure in a follow up study with college aged students.

Lastly, the Children and Animals Inventory (CAI; Dadds et al., 2004) was found to be a reliable, stable measure of cruelty using parent and child reports. The CAI was based on the Children and Animals Assessment Instrument (CAAI; Ascione et al., 1997a), a semi-structured interview for children that assessed nine theory-driven aspects of cruelty: severity, frequency, duration, recency, diversity across and within categories, sentience, covertness, isolation, and empathy. The preliminary study consisted of 36 parent and child pairs with children aged between 6 and 13 (M = 11.4 years). Dadds et al. found the CAI to be a potentially valid and reliable measure of children's cruelty to animals; however, the distribution of CAI scores was skewed in nonclinical samples as the majority or participants scored zero. In 2004, Dadds et al. tested the instrument with 330 children, aged 6-13 (M = 10) in Australia. They found that again, when measured in

nonclinical populations, cruelty and consequently the CAI has a very low base rate and therefore results had a highly skewed item response distribution, which is what was found in this current study.

Of concern to this researcher is the confusion related to the scales. One of the scales is retrospective, i.e. CAI while the others are current which makes it difficult to compare. Another question concerns the cultural differences. Thompson and Gullone (2008) surveyed children in Australia while the current study surveyed community college students in the United States. There is some discrepancy as to whether the Australian and United States educational systems are comparable; it does appear, from a cursory web search, that students in Australia complete six years of high school while students in the United States complete four years. Therefore, in Australia, students ages 18, 19, and 20 would still be in high school. Thus, developmentally these students may be at different stages.

Prior research into cruelty to animals was very limited, often using the single item "cruel to animals" from the Child Behavior Checklist (CBCL; Achenbach, 1991) or a structured interview, such as the Boat Inventory on Animal Related Experiences (BIARE; Boat, 1994). Again, these were standardized with elementary school children.

Henry (2004) conducted an interesting study with 206 college students (ages ranging from 17 to 64; M = 22.4 years; female = 117; male = 89) in Denver, investigating the relationship between age at which a student first observed animal abuse and whether they participated in group versus solitary animal cruelty. He found that those who reported having first observed animal abuse before the age of 13 were more likely to

abuse animals than those who were first exposed to animal abuse at 13 years or later. He additionally reports that college students who reported animal abuse were 2.5 to 3 times more likely to report participation in animal cruelty than those who had never observed abuse. He used a modified version of the survey used by Flynn (1999) which has an adaptation of the BIARE, deleting the section pertaining to sexual contact with animals and the Attitudes Toward the Treatment of Animals Scale (ATTAS; Henry, ND). He found, as this researcher did, that in nonclinical studies, the low percentage of individuals participating in animal abuse (12% in Henry's study; N = 18 males and N = 6 females admitting to animal cruelty) reduced the validity of the results. Those who reported having never engaged in animal abuse had the highest ATTAS scores; those who reported engaging in animal abuse alone had the lowest ATTAS scores; and, those who reported engaging in animal abuse, but never alone, had intermediate ATTAS scores. Out of curiosity this researcher ran a multiple regression with the data from this study exploring the association between observed animal cruelty and animal cruelty and then for gender and animal cruelty. The results minimally supported Henry's report though encourages further investigation of these correlations. An investigation into the use of the scales used by Henry as well as the P.E.T. Scale of the Measurement of Physical and Emotional Tormenting of Animals (Baldry, 2004) with college aged students would be interesting. Baldry developed her scale for use with animals. Additionally, in further studies, the examination of the Animal Abusers Interview and Risk Assessment Tool (AAIRAT) developed by Tedeshi (N.D.) and the Clinical Assessment of Juvenile Animal

Cruelty developed by Lewchanin and Zimmerman (2000) for college age students would be essential.

Once the suitable tools for this population are chosen, it would be fascinating to redo the study to better determine (1) if a student's level of attachment/attachment style predicts prosocial and antisocial behaviors and (2) if companion pet attachment compensates for a low level of attachment. This continues to be a pressing issue as there is growing evidence of the importance of attachment security in older adolescence and young adulthood. Providing young adults with the skills needed to form intimate relationships and resolve interpersonal conflict is a challenge and requires a clear, comprehensive model of social competence, which might include humane education.

Of interest in this discussion of social competence is the theory of "emerging adulthood" (Arnett, 2000) which may help explain the differences between the findings in this study and those of Thompson and Gullone (2008). The construct of emerging adulthood identifies the period from the late teens through the twenties, but is primarily focused on ages 18-25, as a distinct phase between adolescence and adulthood.

Erikson (1968) does identify a period of prolonged adolescence typical of industrialized societies that grants young people a 'psychosocial moratorium' during which time he or she is free to experiment with different roles as he or she seeks his or her own place in society. While Erikson did not grant this period a separate developmental stage, he does support this continuation and intensification of identity formation.

Arnett suggests that the years from 18 to 25 (or in some cases, 30) are characterized by a high degree of demographic diversity and instability during which time the individual is developing individualistic qualities of character, such as accepting responsibility for one's self, making independent decisions, and becoming financially independent. Thus, if adolescence is the period from ages 10 (puberty) to 18 and emerging adulthood is the period from approximately 18 to 25, most identity exploration takes place in emerging adulthood rather than in adolescence. Therefore, a young person from 18 to 25 is exploring long term relationships, serious educational and vocational paths, and developing an individual 'worldview' (Perry, 1999). Not coincidentally, this period of emerging adulthood is often one of separation from parents (and even isolation) as he or she moves out into his or her own apartment and focuses on friendships and relationships.

Consequently, according to this theory, emerging adulthood is not adolescence nor is it young adulthood. Those in their late teens to mid-twenties are very different from those in their teen years when young people usually live with parents, date superficially and work service jobs for spending money. They are also very different from those in their late twenties and thirties when many marry and have children. In the United States and other affluent societies, young people are more likely to be offered the opportunity for this 'psychosocial moratorium' of emerging adulthood. However, it may be important to mention the difference between those students in a university setting, living in a dorm, and being financially supported by parents versus those in a community college who tend to be living on their own or with friends and working in addition to attending classes.

Therefore, to continue this study, extensive research into the construct of emerging adulthood should first be undertaken rather than assuming this age may be either similar to adolescence or young adulthood.

Summary

This study attempted to closely follow and expand upon Thompson and Gullone's 2008 study into the associations between prosocial and antisocial behaviors and attachment and empathy in adolescents. Thompson and Gullone (2008) concluded that attachment and empathy significantly predicted prosocial and antisocial behaviors, both individually, and in combination. Attachment was determined using the Inventory of Parent and Peer Attachment-Revised developed by Gullone and Robinson in 2005 and validated with 16 to 20 year olds. Empathy was assessed using the Index of Empathy for Children and Adolescents developed by Bryant in 1982 and validated for elementary school children. Prosocial behavior was assessed using the respective subscale of the self report form of the Strengths and Difficulties Questionnaire developed by Goodman in 2001 and validated with 11-17 year olds. Prosocial behavior was also measured using the Children's Treatment of Animals Questionnaire developed by the authors in 2003 and validated with 8-10 year old children. Antisocial behavior was measured using the Children and Animals Inventory developed by Dadds et al. in 2004 and was validated with 6-13 year olds.

This researcher explored whether the same associations hold true for a sample of 18-20 year old community college students in Westminster, Colorado. There were numerous difficulties with this study as the above scales do not appear applicable to this

age sample. Additionally, the participants were expected to retrospectively answer questions about cruelty to animals, including whether or not they were cruel to worms and insects. If they had been cruel to worms and insects, they would be included with those who had been cruel to mammals and birds. This may have elevated the extent of animal cruelty as few children could be excluded from this type of behavior during their most curious stage. Additionally, the researcher did not include question 13 which was a qualitative piece into the questionnaire, thus limiting access to the severity piece of the CAI scale. The number of students who admitted to harming animals is 17.1%. As discussed in Chapter 2, approximately 1900 people were investigated in 2007 by the Humane Society, which is a small number of people who are likely engaged in some form of animal abuse. The frequency of animal abuse is unknown. The frequency of animal cruelty for this age sample in this study is comparable to those of Henry (2004).

The empathy scale did not seem to relate to this population as well and, subsequently was modified, eliminating those items with a negative item correlation scale to increase reliability of the scale with this population. As discussed above, there are numerous other empathy scales that may prove more reliable with this population.

The prevalent issue for this study appears to be the parental attachment scale and the assumption that college-aged youth are more socially competent, i.e. more prosocial with higher empathy, if they have a strong attachment to parents. This study found no associations between parental attachment and any of the other variables, which, in this researcher's opinion, warrants further exploration into parental attachment at this age

utilizing both more age-appropriate measures and including further research on emerging adulthood.

The inability to explore the parental attachment of community college students, age 18-20, restricted the exploration as to whether companion pet attachment could moderate a poor attachment to parents. The third hypothesis in this study states "Pet attachment compensates for low parental attachment, serving as a moderating variable". The underlying assumption is that even if a student has poor attachment to his or her parent, the attachment relationship with a companion pet may prove to moderate the difficulties associated with the poor attachment to a parent. If this hypothesis was confirmed, this researcher questioned whether an intervention might be possible to help poorly attached students mitigate against the constraints of a poor parental attachment, such as an animal assisted therapy program for incoming students to assist in developing or expanding social competency skills. While this cannot be answered in this study, further investigation into parental attachment for "emerging adults" utilizing age-appropriate measures and their concurrent social competence is warranted. A student who exhibits socially competent behaviors is likely to be more proficient in meeting the demands of secondary education, such as, friendship and relationship development and maintenance, perspective taking, empathic concern, patience, self calming, and coping skills in dealing with academic stressors, work-related stressors, and relationship stressors. Conversely, those without these skills may engage in antisocial behaviors such as animal cruelty and/or cruelty to others.

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APPENDIX I INVITATION TO PARTICIPATE

Win a Computer!

Are you 18, 19, or 20 years old?????

Please complete a survey (takes about 15 minutes) and help me with my research about pet attachment and parental attachment.

You will be entered to win a BRAND NEW LAPTOP COMPUTER!!!!!

Go to:
http://allaboutkindnesscenter.blogspot.com and go to FRCC Student Survey post. SOON!

Thank you.
Chris Anderson MSW

APPENDIX II INFORMED CONSENT

Please complete the following consent form which indicates your voluntary participation in this research. Thank you.

You are invited to participate in a research study on pet attachment. The purpose of this study is to better understand students' relationships with their pets and their parents. Results will be used to complete required dissertation research. None of the survey material will be provided to anyone, nor will anyone be identified by the survey. A few of those who agree to be interviewed about their relationship to their pet will be contacted and interviewed. The names and contact information of those who agree to interviews are kept on a sheet separate from their survey. Those sheets will be destroyed after the completion of the interviews.

FOR QUESTIONS ABOUT THE STUDY, CONTACT: The study is being conducted by Chris Anderson MSW. Ms. Anderson can be reached at 303-588-4522 or by e-mailing her at christianlee2005@msn.com. This project is supervised by Dr. Walter LaMendola, Graduate School of Social Work, University of Denver, Denver, CO 80208, (303)871-2796, Walter.LaMendola@du.edu.

DESCRIPTION: The title of the dissertation is "An investigation into associations with attachment, companion pet attachment, empathy, and prosocial/antisocial behaviors in 18-20 year old college students: A Mixed Methods Study". The study includes a survey of community college students. If you choose to complete the survey, you will be asked to answer a number of questions and supply limited information about yourself, such as age, sex, year in college, and whether or not you have a pet. All surveys will be kept confidential.

RISKS AND BENEFITS: The risks associated with this study are minimal. We cannot and do not guarantee or promise that you will receive any benefits from your participation in this study. One benefit which may reasonably be expected to result from this study is to assist college students in understanding in how pet attachment may contribute to their ability to succeed. Your decision whether or not to participate in this study will not affect your relationship with Front Range Community College (e.g. grades in class, work study employment). However, should you feel uncomfortable or upset by any of the questions in the surveys, you may immediately turn in your survey, discontinue your participation in this study, and leave the area; additionally, counseling resources are available for you at the sign in table.

TIME INVOLVEMENT: Participation in this study should take about 20 minutes of your time. Participation will involve responding to a survey that asks you to share your opinions and thoughts about your pet, your parents, other people, and animals in general. Additionally, those who agree to be interviewed can expect to spend an additional 1-2 hours with the researcher.

PAYMENTS: There is no payment for participation. However, participants will be eligible in a drawing for a laptop computer. Upon completion of your survey, you will be directed as to how to enter the raffle; your name and phone number will then be placed in the raffle box. When all surveys have been collected, a name will be chosen randomly from the raffle box. You do not have to be present to win.

SUBJECT'S RIGHTS: If you have read this form and have decided to participate in this project, please understand your participation is voluntary and you have the right

to withdraw your consent or discontinue participation at any time without penalty or loss of benefits to which you are otherwise entitled; however, involvement in the drawings is contingent on completing the surveys. You have the right to refuse to answer particular questions. Your individual privacy will be maintained in all published and written data resulting from the study. This requires a signature; by typing your name here you are signing this consent form online with an E-signature.

I have read and understood the description of Chris Anderson's research study. I have asked for and received a satisfactory explanation of any language that I did not fully understand. I agree to participate in this study, and I understand that I may withdraw my consent at any time. I understand that I may ask for a copy of the consent form by contacting Chris Anderson. Please sign this consent online with an Esignature. I agree to be interviewed for this study.

Signature _____
Date _____
Protocol will expire one year from the date above unless you indicate otherwise. Is this acceptable?

If you agree to be interviewed for this study, please complete the following information. This requires a signature; by typing your name here you are signing this consent form online with an E-signature.

Signature _____
Date _____

If you are chosen to be interviewed for this research, do you agree to be audiotaped? □ Yes □ No

APPENDIX III SURVEY

Before we begin, I am going to ask you just a couple of questions about you. Then we'll go on to the surveys.

1. **I am**
   Male □ Female □

2. **I am**
   18 years old □ 19 years old n□ 20 years old□

3. **This is my**
   First year in college □ Second year in college □ Third year in college □
   Fourth year in college□ More than my fourth year in college□

4. **I have a pet now.**
   Yes □ No □

5. **I have the following pets:**
   Cat(s) □ Dog(s) □ Bird(s) □ Small furry animal(s) □ Reptile(s) Fish □
   Horse(s) □ Other □ I don't have a pet now □

6. **I had pets when I was a child.**
   Yes □ No □

7. **I had the following pets when I was a child:**
   Cat(s) □ Dog(s) □ Bird(s) □ Small furry animal(s) □ Reptile(s) Fish □
   Horse(s) □ Other □ I didn't have any pets when I was a child □

The survey starts here.

Ok, here we go. There are six different questionnaires. This first one has 22 questions. Do not spend too much time on any question. This is not a test and there are no right or wrong answers. So, just read the question and check the answer that seems most true about you.

	Yes	No
1. It makes me sad to see a woman who has no friends.		
2. People who kiss and hug in public look ridiculous.		
3. Men who cry because they are happy look ridiculous.		
4. I really like to watch people open presents, even when I don't get a present myself.		
5. Seeing a man who is crying makes me feel like crying.		
6. I get upset when I see a woman being hurt.		
7. Even when I don't know why someone is laughing, I laugh too.		
8. Sometimes I cry when I watch TV.		
9. Women who cry because they are happy are silly.		
10. It's hard for me to see why someone else gets upset.		
11. I get upset when I see an animal being hurt.		
12. It makes me sad to see a man with no friends.		
13. Some songs make me so sad I feel like crying.		
14. I get upset when I see a man being hurt.		
15. People sometimes cry even when they have nothing to be sad about.		
16. It's silly to treat dogs and cats as though they have feelings like people.		
17. I get mad when I see a classmate pretending to need help from the professor all the time.		
18. People who have no friends probably don't want any.		
19. Seeing a woman who is crying makes me feel like crying.		
20. I think it is funny that some people cry during a sad movie or while reading a sad book.		
21. I am able to eat even when I see someone looking at me wanting some.		
22. I don't feel upset when I see a classmate punished by a professor for not obeying rules.		

How often do you do the following with your pet?

For each statement, please indicate whether you never, sometimes, or often do it.
Remember to mark the response that is most true for you. There are no right or wrong answers.
Please do not spend too much time on any one statement.
If there are no companion animals in your home, answer in relation to other people's companion animals, or imagine that you have a pet. Answer the questions in relation to what you think you would do.

	Often	Sometimes	Never
1.Play with			
2. Give food or water to			
3. Take for a walk			
4. Pat			
5. Yell at			
6. Cuddle			
7. Cry with when I am sad			
8. Talk to			
9. Allow to stay in my room			
10. Play dress up with			
11. Groom			
12. Tell my secrets to			
13. Spend time with			

The following statements relates to your parents.

For each statement please indicate whether it is always true, sometimes true, or never true for you. There are no right or wrong answers. Please do not spend too much time on any one statement. If you were raised mostly by one parent, please answer thinking about this parent.

	Always true	Sometimes true	Never true
1. My parents respect my feelings.			
2. My parents are good parents.			
3. I wish I had different parents.			
4. My parents accept me as I am.			
5. I can depend on my parents to help me solve a problem.			
6. I like to get my parents' view on things I'm worried about.			
7. It helps to show my feelings when I am upset.			
8. My parents can tell when I'm upset about something.			
9. I feel silly or ashamed when I talk about my problems with my parents.			
10. My parents expect too much from me.			
11. I easily get upset at [my parents'] home.			
12. I get upset a lot more than my parents know about.			
13. When I talk about things with my parents they listen to what I think.			
14. My parents listen to my opinions.			
15. My parents have their own problems, so I don't bother them with mine.			
16. My parents help me to understand myself better.			
17. I tell my parents about my problems and troubles.			
18. I feel angry with my parents.			
19. I don't get much attention at home from my parents.			
20. My parents support me to talk about my worries.			
21. My parents understand me.			
22. I don't know who I can depend on.			
23. When I am angry about something, my parents try to understand.			

This set of questions talks about people and animals

Sometimes people hurt animals on purpose. For the following questions, please check the most appropriate answer.

Remember: this is confidential. Nobody knows who is answering these questions, not even me so you can be totally honest. Thank you.

1. Have you ever hurt an animal on purpose?	Never Hardly Ever A few times Several times Frequently
2. How many times have you hurt an animal on purpose?	Never Once or twice 3-6 times more than 6 times
3. Which of these animals have you been cruel to? (Circle all that apply)	None Worms or insects Fish, Lizards or frogs Birds or mammals
4. How long did you do this for (on and off)?	Never For about ne month For about 6 months Longer than 6 months
5. When was the last time you hurt an animal on purpose?	I never hurt an animal More than a year ago Less than1 year, more than 6 months In last 6 months
6. Do you treat animals cruelly in front of others or by yourself?	I never hurt an animal In front of others Alone
7. If you hurt an animal with others, are they older adults or friends? (Check all that apply.)	I never hurt an animal Older adults Friends who join in With friends who don't join in
8. If you hurt an animal by yourself, do you try to hide what you have done?	I never hurt an animal No, I don't try to hide it Sometimes I I try to hide it but not always Yes, I do try to hide it
9. If you purposely hurt an animal, do you ever feel very sorry for it and feel sad that you hurt it?	I never hurt an animal Yes, I feel very sad for for the animal Sometimes I feel bad, but not always No, I do not feel sad for the animal
10. How do you feel about people hurting animals?	Very sad and upset Don't know They deserve it It is fun
11. Have you ever seen someone else hurt an animal on purpose?	Never A few times Several times Frequently
12. If you have seen someone else hurt an animal on purpose, who were they? (Circle all that apply)	Stranger Friend Relative Parent Brother or sister
13. What type of animals have you hurt in the past? Please indicate how many for each type of animal.	None Wild animals #: Stray animals #: Pet animals #:

Fourth Survey

For each item, please mark the box for Not True, Somewhat True, or Certainly True. It would help me if you answered all items as best you can even if you are not absolutely certain. Please give your answers on the basis of how things have been for you over the last six months.

1. I try to be nice to other people. I care about their feelings.	Not true	Somewhat true	Certainly true
2. I am restless; I cannot stay still for long.			
3. I get a lot of headaches, stomach aches or sickness.			
4. I usually share with others, for example CDs, games, food.			
5. I get very angry and often lose my temper.			
6. I would rather be alone than with people of my age.			
7. I usually do as I am told.			
8. I worry a lot.			
9. I am helpful if someone is hurt, upset or feeling ill.			
10. I am constantly fidgeting or squirming.			
11. I have one good friend or more.			
12. I fight a lot. I can make other people do what I want.			
13. I am often unhappy, depressed or tearful.			
14. Other people my age generally like me.			
15. I am easily distracted; I find it difficult to concentrate.			
16. I am nervous in new situations. I easily lose confidence.			
17. I am kind to younger people.			
18. I am often accused of lying or cheating.			
19. Other people pick on me or bully me.			
20. I often volunteer to help others.			
21. I think before I do things.			
22. I take things that are not mine from home, school, or elsewhere.			
23. I get along better with people older than I am.			
24. I have many fears, I am easily scared.			
25. I finish the work I'm doing. My attention is good.			

Last Survey

Please tell me whether you agree or disagree with some very brief statements about your favorite pet. For each statement, check whether you strongly agree, somewhat agree, or strongly disagree. You may refuse to answer.

	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly	Don't Know orRefuse to Answer
My pet means more to me than any of my friends.					
Quite often I confide in my pet.					
I believe that pets should have the same rights and privileges as family members.					
I believe my pet is my best friend.					
Quite often, my feelings toward people are affected by the way they react to my pet.					
I love my pet because he/she is more loyal to me than most of the people in my life.					
I enjoy showing other people pictures of my pet.					
I think my pet is just a pet.					
I love my pet because it never judges me.					
My pet knows when I'm feeling bad.					
I often talk to other people about my pet.					
My pet understands me.					
I believe that loving my pet helps I stay healthy.					
Pets deserve as much respect as humans do.					
My pet and I have a very close relationship.					
I would do almost anything to take care of my pet.					
I play with my pet quite often.					
I consider my pet to be a great companion.					
My pet makes me feel happy.					
I feel that my pet is a part of my family.					
I am not very attached to my pet.					
Owning a pet adds to my happiness.					
I consider my pet to be a friend.					

It’s All Over!

WOW! You did it! Thank you so much for helping me!

Now, to enter the raffle...please send me an email with your name, telephone number and/or email. Once I collect all the surveys, I will put the names in a raffle box, mix them up and pick the winner. I sure hope it's you!

My email is: christianlee2005@msn.com
Type "survey" in the address line.

Thanks again

APPENDIX IV IPPA-R

IPPA-R

The following statements relate to your parents. For each statement please indicate whether it is *always true, sometimes true,* or *never true* for you (circle one). There are no right or wrong answers. Please do not spend too much time on any one statement.

1. My parents respect my feelings	Always True	Sometimes True	Never True
2. My parents are good parents			
3. I wish I had different parents	Always True	Sometimes True	Never True
4. My parents accept me as I am	Always True	Sometimes True	Never True
5. I can depend on my parents to help me solve a problem	Always True	Sometimes True	Never True
6. I like to get my parents' view on things I'm worried about	Always True	Sometimes True	Never True
7. It helps to show my feelings when I am upset	Always True	Sometimes True	Never True
8. My parents can tell when I'm upset about something	Always True	Sometimes True	Never True
9. I feel silly or ashamed when I talk about my problems with my parents	Always True	Sometimes True	Never True
10. My parents expect too much from me	Always True	Sometimes True	Never True
11. I easily get upset at home	Always True	Sometimes True	Never True
12. I get upset a lot more than my parents know about	Always True	Sometimes True	Never True
13. When I talk about things with my parents they listen to what I think	Always True	Sometimes True	Never True
14. My parents listen to my opinions	Always True	Sometimes True	Never True
15. My parents have their own problems, so I don't bother them with mine	Always True	Sometimes True	Never True
16. My parents help me to understand myself better	Always True	Sometimes True	Never True
17. I tell my parents about my problems and troubles	Always True	Sometimes True	Never True
18. I feel angry with my parents	Always True	Sometimes True	Never True
19. I don't get much attention at home	Always True	Sometimes True	Never True
20. My parents support me to talk about my worries	Always True	Sometimes True	Never True
21. My parents understand me	Always True	Sometimes True	Never True
22. I don't know who I can depend on	Always True	Sometimes True	Never True
23. When I am angry about something, my parents try to understand	Always True	Sometimes True	Never True
24. I trust my parents	Always True	Sometimes True	Never True
25. My parents understand my problems	Always True	Sometimes True	Never True
26. I can count on my parents when I need to talk about a problem	Always True	Sometimes True	Never True
27. No one understands me	Always True	Sometimes True	Never True
28. If my parents know that I am upset about something,they can ask me about it	Always True	Sometimes True	Never True

APPENDIX V IECA (ORIGINAL)

IECA

Please complete the following information about yourself:

My School: _____ Year Level: _____

I am (please circle): Male Female Age in years: _____

Date of birth: ____/____/19____ Today's date: ____/_____/____

I live with (please tick): ☐ My mother, my father, my brother(s) and/or sister(s)

☐ My mother, my brother(s) and/or sister(s)

☐ My father, my brother(s) and/or sister(s)

☐ Other (please specify)

Read each statement below carefully and then circle the choice next to each statement that seems most true about you. Do not spend too much time on any one item.

Remember, this is not a test. There are no right or wrong answers.

1. It makes me sad to see a girl who can't find anyone to play with	Yes	No
2. People who kiss and hug in public are silly	Yes	No
3. Boys who cry because they are happy are silly	Yes	No
4. I really like to watch people open presents, even when I don't get a present myself	Yes	No
5. Seeing a boy who is crying makes me feel like crying	Yes	No
6. I get upset when I see a girl being hurt	Yes	No
7. Even when I don't know why someone is laughing, I laugh too	Yes	No
8. Sometimes I cry when I watch TV	Yes	No
9. Girls who cry because they are happy are silly	***Yes***	No
10. It's hard for me to see why someone else gets upset	Yes	No
11. I get upset when I see an animal being hurt	Yes	No
12. It makes me sad to see a boy who can't find anyone to play with	Yes	No
13. Some songs make me so sad I feel like crying	Yes	No
14. I get upset when I see a boy being hurt	Yes	No
15. Grown-ups sometimes cry even when they have nothing to be sad about	Yes	No
16. It's silly to treat dogs and cats as though they have feelings like people	Yes	No
17. I get mad when I see a classmate pretending to need help from the teacher all the time	Yes	No
18. Kids who have no friends probably don't want any	Yes	No
19. Seeing a girl who is crying makes me feel like crying	Yes	No
20. I think it is funny that some people cry during a sad movie or while reading a sad book	Yes	No
21. I am able to eat all my cookies even when I see someone looking at me wanting one	Yes	No
22. I don't feel upset when I see a classmate punished by a teacher for not obeying rules	Yes	No

APPENDIX V IECA AMENDED

IECA

Please complete the following information about yourself:

I am (please circle): Male Female Age in years:

Year in college: 1st 2nd 3rd 4th more than 4th year in college

I have a pet now: Yes No If yes, what pets do you have?

Did you have a pet when you were a child? Yes No

If yes, what pets did you have?

Read each statement below carefully and then circle the choice next to each statement that seems most true about you. Do not spend too much time on any one item.

Remember, this is not a test. There are no right or wrong answers.

1. It makes me sad to see a woman who has no friends	Yes	No
2. People who kiss and hug in public look ridiculous	Yes	No
3. Men who cry because they are happy look ridiculous	Yes	No
4. I really like to watch people open presents, even when I don't get a present myself	Yes	No
5. Seeing a man who is crying makes me feel like crying	Yes	No
6. I get upset when I see woman being hurt	Yes	No
7. Even when I don't know why someone is laughing, I laugh too	Yes	No
8. Sometimes I cry when I watch TV	Yes	No
9. Women who cry because they are happy are silly	Yes	No
10. It's hard for me to see why someone else gets upset	Yes	No
11. I get upset when I see an animal being hurt	Yes	No
12. It makes me sad to see a man with no friends	Yes	No
13. Some songs make me so sad I feel like crying	Yes	No
14. I get upset when I see a man being hurt	Yes	No
15. People sometimes cry even when they have nothing to be sad about	Yes	No
16. It's silly to treat dogs and cats as though they have feelings like people	Yes	No
17. I get mad when I see a classmate pretending to need help from the professor all the time	Yes	No
18. People who have no friends probably don't want any	Yes	No
19. Seeing a woman who is crying makes me feel like crying	Yes	No
20. I think it is funny that some people cry during a sad movie or while reading a sad book	Yes	No
21. I am able to eat even when I see someone looking at me wanting some	Yes	No
22. I don't feel upset when I see a classmate punished by a professor for not obeying rules	Yes	No

APPENDIX VI SDQ (ORIGINAL)

SDQ

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain. Please give your answers on the basis of how things have been for you **over the last six months.**

	Not true	**Somewhat true**	**Certainly true**
I try to be nice to other people. I care about their feelings	☐	☐	☐
I am restless; I cannot stay still for long	☐	☐	☐
I get a lot of headaches, stomach-aches or sickness	☐	☐	☐
I usually share with others, e.g. CDs, games, food	☐	☐	☐
I get very angry and often lose my temper	☐	☐	☐
I would rather be alone than with people of my age	☐	☐	☐
I usually do as I am told	☐	☐	☐
I worry a lot	☐	☐	☐
I am helpful if someone is hurt, upset or feeling ill	☐	☐	☐
I am constantly fidgeting or squirming	☐	☐	☐
I have one good friend or more	☐	☐	☐
I fight a lot. I can make other people do what I want	☐	☐	☐
I am often unhappy, depressed or tearful	☐	☐	☐
Other people my age generally like me	☐	☐	☐
I am easily distracted; I find it difficult to concentrate	☐	☐	☐
I am nervous in new situations. I easily lose confidence	☐	☐	☐
I am kind to younger children	☐	☐	☐
I am often accused of lying or cheating	☐	☐	☐
Other children or young people pick on me or bully me	☐	☐	☐
I often volunteer to help others (parents, teachers, children)	☐	☐	☐
I think before I do things	☐	☐	☐
I take things that are not mine from home, school or elsewhere	☐	☐	☐
I get along better with adults than with people my own age	☐	☐	☐
I have many fears, I am easily scared	☐	☐	☐
I finish the work I'm doing. My attention is good	☐	☐	☐

APPENDIX VI SDQ (AMENDED)

SDQ

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain. Please give your answers on the basis of how things have been for you **over the last six months.**

	Not true	**Somewhat true**	**Certainly true**
I try to be nice to other people. I care about their feelings	□	□	□
I am restless; I cannot stay still for long	□	□	□
I get a lot of headaches, stomach-aches or sickness	□	□	□
I usually share with others, E.G. CDs, games, food	□	□	□
I get very angry and often lose my temper	□	□	□
I would rather be alone than with people of my age	□	□	□
I usually do as I am told	□	□	□
I worry a lot	□	□	□
I am helpful if someone is hurt, upset or feeling ill	□	□	□
I am constantly fidgeting or squirming	□	□	□
I have one good friend or more	□	□	□
I fight a lot. I can make other people do what I want	□	□	□
I am often unhappy, depressed or tearful	□	□	□
Other people my age generally like me	□	□	□
I am easily distracted; I find it difficult to concentrate	□	□	□
I am nervous in new situations. I easily lose confidence	□	□	□
I am kind to younger people	□	□	□
I am often accused of lying or cheating	□	□	□
Other people pick on me or bully me	□	□	□
I often volunteer to help others	□	□	□
I think before I do things	□	□	□
I take things that are not mine from home, school or elsewhere	□	□	□
I get along better with people older than I am	□	□	□
I have many fears, I am easily scared	□	□	□
I finish the work I'm doing. My attention is good	□	□	□

APPENDIX VII CTAQ

CTAQ
Thompson & Gullone (2003)

How often do you do the following things with your companion animal(s)?

For each statement below, please indicate whether you ***never, sometimes,*** or ***often*** do it.

Remember to mark the response that is most true for **you**. There are no right or wrong answers. Please do not spend too much time on any one statement.

If there are no companion animals in your home, answer in relation to other people's companion animals, or *imagine* that you have a pet. Answer the questions in relation to what you *think* you would do.

1. Play with ……	□ Often	□ Sometimes	□ Never
2. Give food or water to……	□ Often	□ Sometimes	□ Never
3. Take for a walk……	□ Often	□ Sometimes	□ Never
4. Pat……	□ Often	□ Sometimes	□ Never
5. Yell at……	□ Often	□ Sometimes	□ Never
6. Cuddle……	□ Often	□ Sometimes	□ Never
7. Cry with when I am sad……	□ Often	□ Sometimes	□ Never
8. Talk to……	□ Often	□ Sometimes	□ Never
9. Allow to stay in my room……	□ Often	□ Sometimes	□ Never
10. Play dress up with……	□ Often	□ Sometimes	□ Never
11. Groom……	□ Often	□ Sometimes	□ Never
12. Tell my secrets to ……	□ Often	□ Sometimes	□ Never
13. Spend time with……	□ Often	□ Sometimes	□ Never

APPENDIX VIII CAI (ORIGINAL)

CAI

This set of questions talks about people and animals and how sometimes people can hurt animals on purpose. For the following questions, please circle the most appropriate answer.

1.	Have you ever hurt an animal on purpose?	Never	Hardly Ever	A few times	Several times	Frequently
2.	How many times have you hurt an animal on purpose?	Never	Once or twice	Three to six times	More than six times	
3.	Which of these animals have you been cruel to?	None	Worms or insects	Fish, lizards or frogs	Birds or mammals	
4.	How long did you do this for (on and off)?	Never	For about one month	For about six months	Longer than six months	
5.	When was the last time you hurt an animal on purpose?	I have never hurt an animal	More than a year ago	Less than 1 year ago but more than 6 months ago	In the last 6 months (half a year)	
6.	Do you treat animals cruelly infront of others or by yourself?	I have never hurt an animal	In front of others	Alone		
7a.	If you hurt an animal with others, are they adults or friends?	I have never hurt an animal	Adults	Friends who join in	With friends who don't join in	
7b.	If you hurt an animal by yourself, do you try to hide what you have done?	I have never hurt an animal	No, I don't try to hide it	Sometimes I try to hide it, not always	Yes I do try to hide it	
8.	If you purposely hurt an animal, do you ever feel very sorry for it and feel sad that you hurt it?	I have never been cruel to an animal	Yes, I feel very sad for the animal	Sometimes I feel bad, not always	No, I do not feel sad for the animal	
9.	How do you feel about people hurting animals?	Very sad and upset	Don't know	They deserve it	It is fun	
10.	Have you ever seen someone else hurt an animal on purpose?	Never	A few times	Several times	Frequently	

For the following 2 questions, please circle as many responses as needed.

11. If you have seen someone else hurt an animal on purpose, who were they?	Stranger	Friend	Relative	Parent	Brother or sister
12. What type of animals have you hurt in the past?	None	Wild animals How many? ____	Stray animals How many? ____	Farm animals How many? ____	Pet animals How many? ___

13. In the space below, please tell us about when you have hurt an animal on purpose or what you usually do if you hurt animals often. If **you** have never hurt an animal on purpose, you may have seen someone else hurt an animal. Please tell us about that.

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Feel free to continue on the back of the page if needed

APPENDIX VIII CAI (AMENDED)

CAI

For the following questions, please circle the most appropriate answer.

1.	Have you ever hurt an animal on purpose?	Never	Hardly Ever	A few times	Several times	Frequently
2.	How many times have you hurt an animal on purpose?	Never	Once or twice	Three to six times	More than six times	
3.	Which of these animals have you been cruel to?	None	Worms or insects	Fish, lizards or frogs	Birds or mammals	
4.	How long did you do this for (on and off)?	Never	For about one month	For about six months	Longer than six months	
5.	When was the last time you hurt an animal on purpose?	I have never hurt an animal	More than a year ago	Less than 1 year ago but more than 6 months ago	In the last 6 months (half a year)	
6.	Do you treat animals cruelly in front of others or by yourself?	I have never hurt an animal	In front of others	Alone		
7a.	If you hurt an animal with others, were older than you or friends?	I have never hurt an animal	Older	Friends who join in	With friends who don't join in	
7b.	If you hurt an animal by yourself, do you try to hide what you have done?	I have never hurt an animal	No, I don't try to hide it	Sometimes I try to hide it, not always	Yes I do try to hide it	
8.	If you purposely hurt an animal, do you ever feel very sorry for it and feel sad that you hurt it?	I have never been cruel to an animal	Yes, I feel very sad for the animal	Sometimes I feel bad, not always	No, I do not feel sad for the animal	
9.	How do you feel about people hurting animals?	Very sad and upset	Don't know	They deserve it	It is fun	
10.	Have you ever seen someone else hurt an animal on purpose?	Never	A few times	Several times	Frequently	

For the following 2 questions, please circle as many responses as needed.

11. If you have seen someone else hurt an animal on purpose, who were they?	Stranger	Friend	Relative	Parent	Brother or sister
12. What type of animals have you hurt in the past?	None	Wild animals How many? ____	Stray animals How many? ____	Farm animals How many? ____	Pet animals How many? ___

APPENDIX IX LAPS

Lexington Attachment to Pets Scale

Please tell us whether you agree or disagree with some very brief statements about your pet. For each statement, please check whether you strongly agree, somewhat agree, somewhat disagree, or strongly disagree. You may refuse to answer.

	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	Don't know or refuse to answer
My pet means more to me than any of my friends.					
Quite often I confide in my pet.					
I believe that pets should have the same rights and privileges as family members.					
I believe my pet is my best friend.					
Quite often my feelings toward people are affected by the way they react to my pet.					
I love my pet because he/she is more loyal to me than most of the people in my life.					
I enjoy showing other people pictures of my pet.					
I think my pet is just a pet.					
I love my pet because it never judges me.					
My pet knows when I am feeling bad.					
I often talk to other people about my pet.					
My pet understands me.					