

**People-Pleasing Animals: Mediating Factors in Attachment Style Difference Between Dog
People and Cat People**

by

Jennifer Link

In Partial Fulfillment of the Requirements for the Degree of

MASTER OF SCIENCE

In

Psychological Science

State University of New York

New Paltz, New York 12561

May 2021

People-Pleasing Animals: Mediating Factors in Attachment Style Difference Between Dog
People and Cat People

Jennifer Link

State University of New York at New Paltz

We, the thesis committee for the above candidate for the Master of Science degree, hereby
recommend acceptance of this thesis.

Tabitha Holmes, Thesis Advisor

Psychological Science, SUNY New Paltz

Glenn Geher, Thesis Committee Member

Psychological Science, SUNY New Paltz

Matthew Wice, Thesis Committee Member

Psychological Science, SUNY New Paltz

Submitted in partial fulfillment

Of the requirements for the Master of Science degree

In Psychological Science

At the State University of New York at New Paltz

Abstract

Pets are more ubiquitous now than ever; with more and more couples opting to adopt dogs instead of having children, there's never been a better time to attempt to discern the ways that people view these animals and what makes some people more likely to adopt one animal over another. Though past research has aimed to examine the ways that dog and cat people differ in terms of personality, little research has attempted to assess the role of attachment in the preference that individuals have towards one animal or another. The present research aimed to assess the ways that attribution of theory of mind and attachment style impact the preference that individuals have for cats or dogs. Findings suggest that, on average, participants attributed more theory of mind to dogs than to cats overall. Study 2 also indicates that pet preference, as well as attachment style, appear to partly influence the amount of theory of mind an individual attributes to dogs in particular. The results of this research may begin to unravel the ways that individuals attribute different traits to their pets based on species, and hopefully will contribute to the broader literature on the way that personality and individual differences factor into the preferences that individuals have for different animals as pets.

People Pleasing Animals: Mediating Factors in Attachment Style Difference between Dog People and Cat People

For many Americans and people around the world, it's difficult to imagine a life without pets. Dogs have been our companions for at least the last 30,000 years (Hare & Woods, 2013), and humans have shaped them into hundreds of breeds for hundreds of purposes, from the lion-hunting Rhodesian Ridgebacks to the Chinese Crested on the lap of an emperor. They've taken on the title of "Man's Best Friend" and for many, they are just that. But what about the second most popular pet in America, the one most commonly pitted against dogs in movies and the media? What about cats? Despite both dogs and cats being the most populous pet species in the country, these two animals often seem to be portrayed very differently by those who own them. This paper aims to further examine the reasons that dogs and cats seem to be portrayed in different ways, as well as attempt to uncover what may be contributing to individuals' differences in preference.

Anthropomorphism

Morgan's Canon, an idea set forth by C. Lloyd Morgan in the late 19th century, states that the way in which people and scientists discuss the cognition of animals must be first assessed in the most simple way, a kind of psychological Occam's razor (Morgan, 1894). That is, if a dog can open a complicated gate latch in order to walk through the gate, a scientist should not assume that the dog is a genius, but rather that the dog went through a lengthy series of trial and error in order to figure out how the gate needed to be opened. Partially based on Morgan's assessment of falsely attributing higher-order thinking to animals, and despite Morgan's later corrections to his initial statements, anthropomorphism became a dirty word in the field of biology and zoology as a whole (Wynne, 2005).

Although this distaste for anthropomorphism in the biological fields is often reasonable and warranted, there are places where it may indeed be helpful for both the humans and animals they anthropomorphize. At its most basic premise, anthropomorphism can be seen as merely attributing human traits or language to nonhuman agents. One theory of anthropomorphism by Epley et al. (2007), the SEEK theory, put forth the various reasons that an individual may anthropomorphize in the world. These reasons include the need for social involvement, the innate need to predict what an anthropomorphic agent will do next, and the kind of knowledge one has about the agent in question. Anthropomorphism may help people understand the world around them in a less confusing and unpredictable way and help them feel closer to objects and animals if they need it.

Suppose one extends anthropomorphism to mean more than just attributing a human mind to animals, but also naming the animal and referring to it with pronouns like “he/she” rather than “it”. When one includes this in the definition of anthropomorphism, the benefits to humans and animals alike double. In one study, the simple task of being asked to name a series of animals helped alleviate people’s feelings of rejection after a controlled social rejection manipulation (Brown et al., 2016). This act of naming animals does not just help the human dealing with rejection, it can also help the animals being named. One study with dairy cows found that cows who had been named yielded more milk in less time than those who hadn’t (Bertenshaw & Rowlinson, 2009). The explanation given by the authors is of a deeper, friendlier relationship between farmer and cow on the farms where the cows had been named, a relationship that enhances milk production. Other research further exploring these kinds of anthropomorphic behaviors could help to back up this idea that a stronger relationship is beneficial to both animal and human.

Critics of anthropomorphism tend to argue that assigning human characteristics to animals may oversimplify or give too much credence to animals who otherwise aren't capable of the same level of cognition as a human. Still, they cannot negate the positive things that can come from the layperson's anthropomorphic behaviors towards those animals. Beyond naming animals, even something as simple as referring to an animal as "he/she" can change a person's view of it. To show this more clearly, one study had people read stories about a dog in a dangerous situation. Some participants read about the dog using "he/she" pronouns, while the others read about the dog using "it" pronouns. In the condition with the more humanizing pronouns, participants reported higher levels of wanting to help the dog get out of the dangerous situation. They even said they would be more willing to help the animal get adopted or adopt it themselves (Butterfield et al., 2012).

The findings of Butterfield et al. (2012) become even more striking when one considers to which animals humans are willing to ascribe more humanizing pronouns. Evidence suggests the defining factor for many lies in the animals phylogenic relatedness to humans; those more closely related to *homo sapiens* are more often referred to as "he/she" rather than "it" (Harrison & Hall, 2010). This popular but fallacious "hierarchy" of animals is a common predictor of referring to the animal using gendered pronouns and the level of emotional capability attributed to that animal (Wilkins et al., 2015). Perhaps this could begin to explain some of the reasoning behind the trouble that people have with helping animals they can't see themselves in. The charismatic megafauna of the world get love and adoration, while the hagfish and naked mole rats of the world struggle to stay afloat.

Anthropomorphism Across Different Species

Although there have been a number of studies and papers devoted to the reasons that humans anthropomorphize, and the ways that anthropomorphism can be helpful (e.g., Brown et al., 2016; Butterfield et al., 2012; Epley et al., 2007; McConnell et al., 2019; Waytz et al., 2010), few have examined the specific ways that people do it. A couple of studies have, however, examined the amount of mind that an individual attributes to an animal in various scenarios (Bastian et al., 2012; Loughnan et al., 2010). One study focused on *The Meat Paradox*, which refers to the cognitive dissonance associated with both loving animals and eating meat. In an examination of this phenomena, meat eaters attributed less mind to traditionally considered “food animals” when they were reminded of their dietary preference (Bastian et al., 2012). The difference in mind attribution reported in examinations of the Meat Paradox exemplifies the idea that not all anthropomorphism is created equal. Researchers seem very keen on understanding *why* we anthropomorphize, but not so much how we do it (i.e., what anthropomorphic traits we give to said animals).

Bastian et al. (2012) found a difference in the attribution of mind, but not so much in the different emotions given to the animals in question. Would people have seen a cow as happier than a sheep, or a snake as more conniving? Though past research has failed to examine the difference in emotional attribution to different animals, one study did aim to assess the differences between how people interpret images and behaviors of cats and dogs. In this paper, they found that more anthropomorphic thoughts were attributed to dogs (i.e., dogs were given more human-like thoughts) and more ethological behaviors were attributed to cats (i.e., cats were portrayed as just responding to their needs) (Bahlig-Pieren & Turner, 1999).

One possible explanation for this finding could be in our evolutionary history with both of these species. The origins of dogs can be traced as far back as 40,000 years (Hare & Woods,

2013), and with the moniker “Man’s Best Friend” it’s not hard to extrapolate why one may see dogs in this light-hearted way, as canines have evolved alongside us for so many years that some have even posited the existence of a sort-of coevolution between our species (Pongracz et al., 2005). Conversely, cats had an almost purely practical use in their early domestication: pest control. Cat domestication took place in a very different way, with cats following where the human’s pests were for food and slowly being welcomed into the home. The fact that cats retain many of their hunting instincts and remain obligate carnivores (unlike most other domesticated animals) suggests they may not be as domesticated as a dog or farm animal (Driscoll et al., 2009).

This difference in the domestication process between dogs and cats may play a role in the ways that the two species are seen by the public. In addition to dogs having a longer history of domestication than any other animals, they are subject to *anthropomorphic selection*, which is the selective breeding of the species in order to encourage anthropomorphism (Serpell, 2003). Though some breeds of cats have been subject to similar artificial selection, cats lack a long history alongside of humans, which may lead to the widespread misunderstanding of cats by the public (Dawson et al., 2019). Perhaps this lack of understanding about the ways that cats express themselves contributes to the overall difference in the ways that cats are anthropomorphized compared to dogs and other animals.

Pilot Study

There seem to be clear personality traits given to specific species: owls are often portrayed as intelligent, beavers as hard-working, foxes as cunning, and, most notably for this current study, cats as evil geniuses, and dogs as lovable idiots. It takes only a quick internet search to find listacle upon listacle of how a dog would respond if he could text. Most of these

show dogs with little time for anything but playing ball and missing their person, usually saying things like “I MISS YOU”, “I LOVE YOU”, “WHERE ARE YOU”, and “LET’S PLAY BALL”. On the other hand, cats are portrayed in a slightly different way in these fake text speech conversations. They say things like “You left the light on, Harold”, or “My food bowl is half empty. You wish starvation upon me”. Although anecdotal evidence is, of course, to be taken with a grain of salt, the stark contrast in the emotions and beliefs attributed to these two common house pets is worthy of further examination.

With overwhelming research seemingly only addressing the *why* of anthropomorphism, this initial study aimed to examine the *how* of it.

Forty-nine SUNY New Paltz students participated for course credit. Ages ranged from 18 to 36 ($M = 21.40$, $SD = 3.26$). The biological sex of participants was 35 female and 14 male. After consenting to participate, participants were assigned to either a dog or cat condition, each condition saw two images of either a dog or a cat. In one, the dog or cat was simply sitting by a window, looking outside; in the other, the dog or cat was lying in a pile of torn-up toilet paper, staring just above the camera. While looking at these images, participants were instructed to narrate the animal’s thoughts in each image for 1 minute. Participants were then asked a series of demographics questions and thanked for their time.

Participants’ animal narrations were read and coded for similar emergent themes by the primary researcher and a portion was coded by a secondary coder. Percent agreement exceeded 80%. Main themes consisted of the following: Higher order cognition (indication of emoting, understanding, or planning of things not directly related to survival, thinking of or predicting what another entity is going to do), Lower order Cognition (emoting or planning things directly related to survival, instinctual or immediately satisfying urges), and Conceptualization of Human

Relationship (how the animal refers to their owner). A chi-square analysis was run to assess each code's presence in either the dog or cat condition. Significant differences were found between the two animals in two areas. Dogs were more likely to be viewed as having theory of mind than cats, $X^2(3, N = 49) = 9.97, p = .012$, (i.e., were more likely to say things like “if I look cute my owner won’t be mad”, or “my owner will be upset with me”). Dogs were also significantly more likely to refer to their owner using the term “owner,” $X^2(1, N = 49) = 8.16, p = .017$, where cats more evenly used words like “human,” or “Mom/Dad.”

The pilot study's findings demonstrate that there are, in fact, differences in the ways that people anthropomorphize dogs and cats. One unsuspected result of this study was that dogs were more likely characterized as calling their people their “owners” more often than not, and much more often than cats. One might theorize that dogs are given this different referential behavior towards their owner due to their perceived “purpose” in the lives of their people. It may derive from the belief that dogs, being bred for specific uses in the lives of humans, are here solely for our use; we *own* them. Conversely, cats have a much more complicated history of domestication; and may not even be fully domesticated themselves (Driscoll et al., 2009). Not only that, the term “owner” suggests a hierarchy of power that may not exist at all with cats. Perhaps where people see dogs as companions and tools, people see cats as individuals, as roommates.

The second unexpected finding in this pilot study involved theory of mind. Theory of mind refers to an individual's understanding of another individual's beliefs, knowledge, or intents. Here, dogs were attributed more thoughts about their owner’s behaviors and owner’s thoughts than cats were. Could this increase in attribution of theory of mind be due to beliefs surrounding dogs as serving a purpose to humans? If so, perhaps that could explain the use of “owner” over “human” or “mom/dad” when dogs are describing their people. Further, if dogs

were bred to serve and be useful to their owners, they would need to predict and understand what their owner wants and what their owner is feeling.

Theory of Mind

A fundamental part of understanding humans, and, for some, of *being* human, is theory of mind. This refers to the ability of an individual to attribute and understand the mental states to another individual. In some ways, it could be said that anthropomorphism is simply a by-product of the desire by humans to exercise their theory of mind abilities, to put emotions and intents and desires onto other living and nonliving anthropomorphic agents. At its inception, theory of mind was put forth as a question of chimpanzee intelligence, with researchers asking the extent to which great apes were capable of such understanding of conspecifics and humans alike (Premack & Woodruff, 1978). Much theory of mind research has also explored the conception of the ability in children, attempting to pinpoint when exactly humans are first capable of such attribution of mental states to others.

Though there are various tests for theory of mind, one of the more popular is the False Belief Task. In this task, children are shown a video or puppet show of some kind wherein two actors are using an object or toy of some kind. One of the actors will then put the object away and leave the scene. While the first actor is gone, the second actor will move the object to another location. The first actor will then come back to the scene, and the child is asked where they believe the first actor will look for the item (Wimmer & Perner, 1983). This test is meant to assess how well children understand that others can have false beliefs that are different from reality. Generally, when children are given this task, they begin to answer correctly around age 4 or 5, before which time they fail to understand that the first actor wouldn't know to look in the new spot for the object (Wellman et al., 2001).

Similar false-belief tasks have been attempted with various species of nonhuman primates and other animals with mixed success (Penn & Povinelli, 2007). Some studies have pointed to the failure of great apes like chimps and orangutans at understanding false beliefs (Call & Tomasello, 1999), or at the possibility of an over-attribution of theory of mind, when a simpler process may be happening instead (Heyes, 1998), tying back to the importance of Morgan's Canon. Others have shown more promise, with those same great apes seeming to understand that another individual may hold a false belief about where something is located (Krupenye et al., 2016). It's important to note that a false-belief task is not necessarily the end all be all of theory of mind. Where Call and Tomasello (1999) were unable to find evidence to support great apes understanding false beliefs, other research has provided support for the idea that some apes are capable of understanding the knowledge of others, just not that they can hold false beliefs in general (Kaminski et al., 2008).

For many years before these more recent studies with apes, there was conjecture by some scientists that theory of mind was a trait that set humans apart. Now, with mounting evidence that several animals may have some degree of theory of mind, researchers have moved towards exploring how these animals are capable of understanding each other's mental states. As research has shifted from *if* other animals have any degree of theory of mind ability to *which* animals do, investigators have begun to look at those with close social bonds essential to survival to find answers.

Much like humans, other social animals need to understand each other to flourish. From a more anthropocentric viewpoint, one may initially believe that only those animals closely related to humans are capable of this kind of theory of mind, resulting in much of the research with great apes mentioned earlier. However, even an animal as far away from us as Corvids may be capable

of something resembling mental state attribution (Emery & Clayton, 2004). Dogs also may be capable of more theory of mind, or at least more advanced social skills, than we often give them credit for (Hare et al., 2002; Hare & Tomasello, 2005). In order to attempt to differentiate between the degrees of theory of mind that we seem to see in these various other species, Horowitz (2011) put forth the idea of *rudimentary theory of mind*, which may help fill the gap between animals that seem capable of effortlessly passing some theory of mind tests, but consistently failing others. If one accepts that there could be degrees to which an animal has the ability to understand other's mental states, then it becomes much easier to see theory of mind-like behaviors in many social creatures (Horowitz, 2011).

In my pilot study, I was obviously unable to measure the actual theory of mind of the dogs in the pictures. Still, one crucial finding was that participants consistently saw dogs as having more theory of mind than cats. With dogs being incredibly social animals, it's unsurprising that people may believe them to be capable of the attribution of mental states onto their owners, as well as the intentional manipulation of their owner's emotions inherent in the phrase oft repeated, "If I look cute, my owner won't be mad".

The abundance of research on the theory of mind capabilities in non-human animals indicates an evident lack of real clear-cut answer to the question, "Do animals have theory of mind?". With much more research to be done on the subject, an important distinction should be made for the purposes of this current study. The attribution of human characteristics to non-human animals will be assessed here, independent of whether those characteristics can genuinely exist in the animal. As noted previously, understanding the degree to which people believe that animals have theory of mind is an important question in and of itself. For this reason, we turn to

how people perceive these animals and what emotions they put on them using the person's theory of mind, and what factors may be involved in that.

Adult attachment

Since Bowlby and Ainsworth began their work examining how attachment to caregivers could impact children's lives, attachment theory has permeated throughout popular and conventional science alike. At the time of attachment theory's conception, little was known about how infants bonded to their parents or the parenting behaviors that may lead to different kinds of attachment (Bretherton, 1992). One of the earliest tests to assess attachment styles in infants was that of the Strange Situation. This situation involved a standardized procedure in which a child goes through multiple trials of either being with their mother, mother and a stranger, just a stranger, or entirely alone. The ways that the children responded to these different scenarios became the defining behaviors of different attachment styles (Ainsworth & Bell, 1970).

These attachment styles were seen as either "Secure" or "Insecure," with more recent developments indicating a set of two dimensions (Anxious and Avoidant) on which one can measure where they lie between these two attachment styles (Brennan et al., 1998). Those who score high on the anxiety dimension tend to worry more about an attachment figure being unavailable in times of need. These people tend to be seen as "clingier" in relationships. In contrast, those who score high on the avoidant dimension tend to put more emphasis on independent growth and self-reliance, generally staying more emotionally distant in their relationships (Mikulincer & Shaver, 2007).

Perhaps one of the most striking aspects of attachment theory is its predictive power later in life. The attachments that children form with their caregivers are of extreme importance not just in the early stages of life, but also, as research suggests, as they get older. Attachment style

has been shown to predict predilection towards loneliness (Ilhan, 2012), stress and coping skills (Terzi & Çankaya, 2009), success in relationships (Kane et al., 2007), and even use of illicit substances (Caspers et al., 2005). Although there is evidence of Attachment Styles changing over time, it seems that these are overall relatively stable predictors for most of one's life (Cozzarelli et al., 2003; Davila et al., 1997).

Outside of attachment styles, there's the idea of an attachment *figure*, someone whom an individual has the attachment to. In the early research by Ainsworth and Bowlby, this was generally assumed to be the mother and occasionally the father, but more recent findings suggest it could include a number of different kinds of relationships. An attachment figure can be defined as someone who acts as a secure base, is used as a safe haven in times of stress, someone who an individual feels the need to be close to when they're upset, or someone an individual feels a certain degree of separation distress for when unable to get in contact with them (Fraley & Davis, 1997). Under this definition, an individual can become attached to people outside of their immediate family. Their attachment style continues to impact their relationships throughout their lives with romantic partners, friends, and even pets (Zilcha-Mano et al., 2011, 2012).

It's no secret that pets may play a significant role in the lives of their owners, with those who own them scoring higher on various measures of well-being (McConnell et al., 2011) and overall feelings of social support (Brown et al., 2016; McConnell et al., 2019). This feeling of social support could help to explain why many end up seeing their pets as attachment figures in their life. The Pet Attachment Questionnaire (PAQ) (Zilcha-Mano et al., 2011) was created with this exact thought in mind. The scale was made to assess people's anxious and avoidant attachment levels to their pets. Using the PAQ, Zilcha-Mano et al. (2011) were able to look at the varying degrees of secure attachments to pets. They found that the ways that individuals view

their pets, as well as the ways that they grieve when the pet dies, are reliably predicted by their Pet Attachment Orientation. In a follow-up study, Zilcha-Mano et al. (2012) found that pets can be seen as both safe havens as well as secure bases. That is, the presence of a pet can decrease the effect of stress on blood pressure, as well as encourage the imagining and creating of goals for the future. However, this finding was moderated by the individual's pet attachment orientation, where those with more anxious or avoidant orientations showed less benefit from the animal's presence.

With the various accounts of benefits related to pet ownership (Brown et al., 2016; McConnell et al., 2011, 2019), as well as how attachment behavior can impact those benefits and attachments (Zilcha-Mano et al., 2011, 2012), there's been surprisingly little effort to assess how the species of the pet could moderate these attachments. As dogs are often referred to as "Man's Best Friend," some may believe intuitively that humans are simply more capable of developing closer bonds with dogs. The truth is not quite that simple (Zasloff, 1996). One study found that an individual's attachment and satisfaction with their pet was heavily reliant on the way that their pet acted. Individuals who had pets who acted the way that they wanted felt a closer emotional bond to the animal (Serpell, 1996), though anyone who has owned more than one pet species can tell you of the personality differences between the creatures. Not only that, as was evidenced by the pilot study discussed earlier, individuals, when given the option, put different kinds of emotions and thoughts onto other species of animals regardless of whether that's an accurate representation of the animal in question's true mental capabilities.

Pet Preference: Dogs vs. Cats

Though both are the most popular pet choices in the United States, Dogs and Cats seem to have a rivalry in the world of media. With movies like the "Dogs & Cats" Trilogy, as well as

“Lady and the Tramp,” where two cats play an antagonistic (if also racist) role, one might assume that these animals are destined to dislike each other. Of course, thousands of households around the country and likely more around the planet invalidate this assumption every day, with cats and dogs cohabitating regularly. Perhaps what these movies are attempting to tap into is not so much the actual relationship that dogs and cats have, as much as the identification that many pet owners feel with the distinction of being a “cat person” or a “dog person”.

While arguably an arbitrary distinction, many people strongly stand by their identification as either a dog or cat person. This distinction also goes beyond just the incidence of owning one animal or another; rather, it’s specific to the preference that one has for the animal (Perrine & Osbourne, 1998). A number of personality differences arise when one compares self-identified cat and dog people (Alba & Haslam, 2015; Gosling et al., 2010; Guastello et al., 2017; Perrine & Osbourne, 1998). Dog people score higher on Extraversion, Agreeableness, and Conscientiousness but lower on Neuroticism and Openness than cat people (Gosling et al., 2010); dog people also score higher on Social Dominance (SDO) and competitiveness than cat people (Alba & Haslam, 2015). On a more complex personality scale measuring more variables, dog people scored higher on warmth, liveliness, rule consciousness, and social boldness, where cat people scored higher on general intelligence, abstractedness, and self-reliance (Guastello et al., 2017).

It’s also important to note here the role that societal norms play in the self-identification of dog and cat people. Dogs tend to be seen as a more masculine animal, and cats as more traditionally feminine (Mitchell & Ellis, 2013). The choice of dog person may therefore be a more acceptable and easy choice for many young men who perhaps don’t have a strong preference either way. Going even further, one study found that heterosexual men who include

their cat in an online dating profile are less likely to get likes than those who don't include any animal at all (Kogan & Volsche, 2020), perhaps speaking to the perceived lack of masculinity associated with cats. This may also be evidenced by the way that in every study looking directly at the differences between dog and cat people, a majority of those who identify as cat people also identify as female (Alba & Haslam, 2015; Gosling et al., 2010; Guastello et al., 2017; Mitchell & Ellis, 2013; Perrine & Osbourne, 1998).

Though some have posited that this distinction between dog and cat people is primarily influenced by the animal with which one grew up (Perrine & Osbourne, 1998), or societal norms (Mitchell & Ellis, 2013), these variables simply don't account for other aspects of the individual's relationships with these animals. The current research aims to further explore how these preferences arise, and what may lead people towards one animal over another.

Importance

Recent years have seen a rising concern by the public about the animals who are kept in shelters, with phrases like "adopt don't shop" being spouted as gospel by many, and breeders often ending up shunned in animal-loving groups (Romo et al., 2019). Unfortunately, despite this pressure by many to exclusively adopt from shelters and rescues, many shelters experience adoption return rates of up to 20% (Patronek et al., 1995).

A number of studies have been done in an effort to better understand the factors at play in what makes individuals return their pets to shelters (Curb et al., 2013; Hawes et al., 2020; Kidd et al., 1992; Patronek et al., 1995; Serpell, 1996). One study found that individuals held higher expectations for adopted dogs than cats (Kidd et al., 1992), and another found that those who returned dogs and cats did so for different reasons; the primary reason for cat returns being

“personal reasons” while the primary reason for dog returns was behavior problems (Hawes et al., 2020).

In pursuit of lowering the number of animals who are returned to shelters each year, many shelters have put in place strict guidelines and requirements of potential adopters, much to the frustration of many prospective owners for these animals (Greenwood, 2018). Though often these guidelines include things like fenced in yards and time at home with the animal, perhaps one main predictor being left out of the process is personality of the adopter themselves. One study by Curb et al. (2013) aimed to assess how owner-dog personality match predicted amount of satisfaction the owner feels with their dog. They found that four traits needed to be shared between owner and dog for there to be a high level of satisfaction: tendency to share possessions, love of running outside, likeliness of destructivity, and ability to get along with others (Curb et al., 2013). This finding suggests that personality measures could play an instrumental role in ensuring that individuals seeking to adopt certain dogs are going to be satisfied with their pet, and thus less likely to return that animal after adoption.

The growing literature on personality correlates of preferring dogs vs cats (Gosling et al., 2010; Guastello et al., 2017), and the evidence that suggests pet/owner compatibility plays a crucial role in overall satisfaction of adopters and pet owners (Curb et al., 2013; Kidd et al., 1992; Serpell, 1996) indicates a greater need by researchers and the public to understand that there is much more to successful adoption than simply the size of an individual’s yard, or the amount that they work. The present research aims to contribute to the literature assessing the factors that impact preference for different species of animals, and hopefully shed more light on the individuals who choose to adopt these animals.

The Current Study

Taking all the information above together, the present research will explore the relationship between adult attachment style and the preference for either dogs or cats. Given that those with a more avoidant attachment style tend to be more stand-offish, independent, and self-reliant, I predict these individuals will show an overall preference for cats, especially given Guastello et al. (2017)'s finding of a higher rate of self-reliance in cat people. In contrast, I predict that those who score higher on anxious attachment will prefer dogs, as anxious individuals tend to be more dependent on others and more in need of the constant reminders that they are loved and needed. I believe people will perceive dogs as more capable of giving this kind of support, in part because of the results of the pilot study, wherein dogs were rated as having higher levels of theory of mind.

In addition to my predictions about the various attachment styles, I hypothesize attribution of theory of mind working as a mediator to that relationship between attachment style and pet preference. In many of the participants' responses in the pilot study, dogs were described as more adept at understanding their owners and more likely to try to understand them, perhaps an indication of a certain degree of belief in the ways that dogs are intended to please and serve their owners. This may also be evidenced by using of the term "owner" over something less possessive, like "human." Perhaps those who attribute more theory of mind to dogs believe dogs to be more able to predict and understand what they need. Based on this, I hypothesize that theory of mind attribution will mediate the relationship between attachment style and pet preference. Those who attribute more theory of mind to an animal will prefer that animal over another when they are more anxiously attached.

Further, based on the studies examining societal pressure of the labels "dog person" and "cat person" and the perceived masculinity associated with preferring dogs (Mitchell & Ellis,

2013), I also predict that male participants will be more likely to say that they are Dog People, whereas female participants will be more likely to say they are Cat People. This finding would also replicate those of virtually every study examining the differences between dog and cat people (Alba & Haslam, 2015; Gosling et al., 2010; Guastello et al., 2017; Mitchell & Ellis, 2013; Perrine & Osbourne, 1998).

Method

Participants

A total of 328 participants took part in this study, they were recruited from the SUNY New Paltz subject pool as well as through social media postings. Participants were primarily female ($n = 258$), followed by male ($n = 58$), non-binary ($n = 10$), and two undisclosed. Age of participants ranged from 18 to 62 ($M = 23.65$, $SD = 7.20$).

Most participants reported preferring dogs ($n = 142$), closely followed by cats ($n = 108$) and those who were neutral between the two ($n = 78$). On the question of pet ownership in participants' lifetime, 168 participants reported owning both dogs and cats, 91 reported only owning dogs, 42 reported owning neither, and 27 reported only owning cats. One hundred and one participants reported currently only owning dogs, 86 reported owning both currently, 79 reported owning neither, and 62 reported currently only owning a cat.

Materials

As no scale has yet been created to measure attribution of theory of mind to animals, a modified version of the Children's Social Understanding Scale (Tahiroglu et al., 2014) was used instead; the original intention of this scale was for parents to have the ability to assess theory of mind development in their children. To modify this scale, the initial prompt was changed from "My child..." to "I believe that (dogs/cats) can..." and any and all questions regarding talking

and speech were eliminated. This new, modified Children's Social Understanding Scale has a Cronbach's alpha of .78, indicating it is a reliable measure of a singular construct, even without the questions specific to human children.

To assess the adult attachment style of the participants, the Experiences in Close Relationships Short form scale (ECR-S; Wei et al., 2007) was used. This scale was chosen based on its length as well as the continuous nature of its results. Participants were rated on both Avoidance and Anxiety, allowing analyses to be run on all participants rather than just those who fall into an insecure attachment style, which would severely limit the subject pool. The ECR-S has a Cronbach's alpha of .78 for Anxiety and .84 for Avoidance and a correlation of $r = .19$ between the two, indicating that they are distinct dimensions of Attachment.

Procedure

After consenting to participate, participants completed the ECR-S (Wei et al., 2007), followed by the modified Children's Social Understanding Scale (Tahiroglu et al., 2014) for both dogs and cats separately, the order of which being shown first randomized.

Participants were then asked a series of demographic questions such as age, gender and past and current pet ownership. Lastly, they were asked to rate their pet preference on a 8-point scale from 1(Prefer only dogs) to 8(Prefer only cats). Participants who rated themselves as 1-3 on this 8-point scale were categorized as "Dog preference", those who rated themselves as 6-8 were categorized as "Cat preference", and those who fell in the middle, 4 and 5, were categorized as "Neutral".

Results

Consistent with findings from Study 1, a paired samples t-test revealed that dogs were attributed more theory of mind overall ($M = 55.62$, $SD = 6.07$) than cats ($M = 50.42$, $SD = 7.34$),

$t(300) = 15.714$, 95% CI [4.55, 5.85], $p < .001$, $d = .77$. A one-way ANOVA also revealed a significant difference in theory of mind attribution to cats based on pet preference, where those who preferred dogs ($M = 48.74$, $SD = 6.46$) attributed less theory of mind to cats than those who preferred cats ($M = 52.61$, $SD = 7.49$), $F(2,306) = 8.51$, $p < .001$, partial $\eta^2 = .053$.

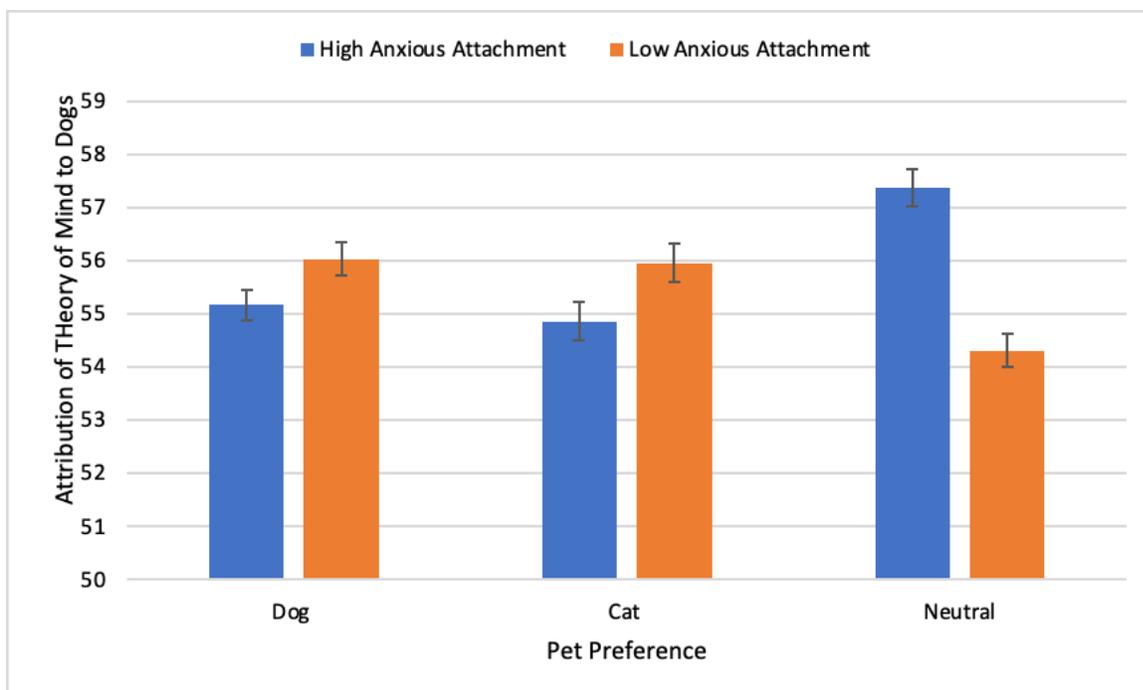
There was a significant effect of ever owning cats or dogs on avoidant attachment, such that those who had ever owned both dogs and cats ($M = 2.25$, $SD = 0.86$) scored lower on avoidant attachment than those who had never owned either ($M = 2.76$, $SD = .94$), $F(3, 319) = 3.905$, $p = .009$. There was no significant effect of currently owning cats or dogs on overall anxious ($p = .276$), or avoidant ($p = .299$) attachment, nor on owning cats or dogs on total attribution of theory of mind to either dogs ($p = .236$) or cats ($p = .223$).

Additionally, in order to categorize people as either high or low in avoidant and anxious attachment, researchers performed a median split of the continuous variables produced by the ECR-S. A univariate ANOVA revealed a significant interaction between Pet Preference and Anxious attachment on the measure of attribution of theory of mind to dogs, such that those who had a neutral preference ($M = 54.31$, $SD = 5.78$) attributed less theory of mind to dogs than both Cat ($M = 55.96$, $SD = 6.69$) and Dog People ($M = 56.03$, $SD = 5.61$) when they were low on anxious attachment, and more theory of mind to dogs ($M = 57.36$, $SD = 6.31$) than both Cat ($M = 54.86$, $SD = 6.68$) and Dog People ($M = 55.17$, $SD = 5.24$) when they were high on anxious attachment, $F(2, 304) = 3.02$, $p = .05$ (see Figure 1). No such interaction occurred with attribution of theory of mind to cats. There was no significant relationship between Attachment style and pet preference, however, and thus the primary hypothesis was not supported. Given the lack of relationship between the variables, Attachment style and pet preference, no mediation analysis could be done.

An independent samples t-test revealed that on average, women ($M = 3.03, SD = .77$) scored higher on Anxious attachment than men ($M = 2.75, SD = .79$), $t(311) = 2.50, p = .013, d = 0.36$, but were no more likely to prefer dogs or cats, nor to attribute more theory of mind to cats or dogs. There was also no significant relationship between gender and pet preference.

Figure 1

Attribution of Theory of Mind to Dogs Based on Attachment Style and Pet Preference, Error Bars Indicate Standard Error.



Discussion

The goal of this study was to assess the ways in which attachment style and attribution of theory of mind relate to pet preference between dogs and cats. Although no association was found between pet preference and attachment style, there was a difference in how much theory of mind was attributed to each animal, with dogs being attributed more theory of mind than cats. This finding is unsurprising given the past research surrounding theory of mind in general, as well as that specific to dogs (Horowitz, 2011). Perhaps this increase in attribution of theory of

mind to dogs could be in part due to the ways that dogs are often portrayed as eager to please their people. Any animal that supposedly wants to please their human must first know what their human wants and must therefore have some degree of theory of mind.

The interaction that existed between attribution of theory of mind to dogs, pet preference, and anxious attachment is slightly harder to conceptualize. While individuals with a preference for dogs or cats showed little difference in attribution of theory of mind to dogs based on anxious attachment levels, those who were neutral in their pet preference attributed more theory of mind to dogs when they had higher levels of anxious attachment. Interestingly, this effect was not present for either avoidant attachment, theory of mind attribution to cats, or in those who owned (either currently or ever) cats and dogs. Perhaps this difference in those who are neutral in pet preference and high in anxious attachment has to do with a kind of idealization of how a dog should be. Where those who strictly prefer dogs or cats may be more realistic about the animals' abilities, maybe those with neutral preference were more swayed by their anxiety in relationships, which lead to them having a more idealistic, people pleasing view of dogs, and one that is perpetuated in the media.

Limitations and Future Research

The present research found no association between attachment style and pet preference between dogs and cats, perhaps in part due to the ways that attachment style was measured. Past research consistently shows a difference in personality traits between those with dog and cat preference (Gosling et al., 2010; Guastello et al., 2017), and this may well be the case on different kinds of attachment. Perhaps a central issue in this study was the lack of variety in levels of anxious and avoidant attachment, with means remaining relatively low on both scales. This lack of association between attachment style and pet preference may also have been in part

due to the questions asked in the ECR-S. This measure asked questions almost entirely related to relationships with a romantic partner, rather than all relationships in general. Though this kind of attachment measure may not present an issue when applied directly to attachment to other humans, a scale intended specifically for pets may have yielded different results.

The Pet Attachment Questionnaire (PAQ; Zilcha-Mano et al., 2011) may have served as a suitable alternative, based on its ability to assign individuals attachment orientations to their pets. Perhaps the hypothesis of higher levels of certain attachment styles leading to more preference towards certain animals would be more apparent in this kind of scale. Another measure of attachment to pets was created by Meehan et al. (2017) and aimed to assess the four attachment behaviors displayed by those with secure attachment: proximity seeking and maintenance, separation distress, safe haven, and secure base. As the present study looked primarily at the two continuous variables assessing insecure attachment, future research could further assess if any relationship exists between the ways that individuals who prefer different pets view their pets on the various facets of secure attachment.

One finding that was inconsistent with previous research was that there was no difference in preference for dogs or cats based on gender. In pursuit of understanding why this happened, it's important to remember the sample used in this study. Most of the participants were drawn from SUNY New Paltz, a predominantly liberal university, as well as Facebook groups that likely lean left on average. In these left-leaning areas, there's likely less pressure for men to actively display masculinity in the same way it may be in a more conservative group. Given the findings of Mitchell and Ellis (2013) on the ways that masculinity and pressure to be "manly" may impact male's predominant preference for dogs, likely a sample of individuals who don't

feel that pressure as keenly would be less likely to conform to the stereotype of men as dog people (Mitchell & Ellis, 2013).

In addition to the fact of the likely liberal sample, it's important here to note the differences that might arise not only in terms of political affiliation but also in cultures both within and outside of the United States. Inside of the USA, there are a number of different ways that dog owners view their dogs, most notably making the distinction between working dogs and pets. In these two different relationships, working dogs are often seen as serving a function or completing a task rather than simply providing love and comfort to their owner (Payne et al., 2015). Going beyond the United States, dogs and cats are seen markedly different in different countries. Most notable are those countries that consume these animals regularly. In South Korea, for example, dogs and cats are seen as both food and pets, with the edibility of dogs seen as an integral part of culture by many (Podberscek, 2009). There also exist a variety of cultures where pets are loved and cared for before being sacrificed or killed for various reasons (Smith, 2019, p. 25). These stark differences in the ways that different countries and cultures examine these species make clear that my findings should be taken only within the cultural context in which they find themselves. Future research should further examine preference for animals across cultures and how that is impacted by the views that the broader public has of those animals on the whole.

Finally, in the current study individuals were asked to rate the degree to which they either preferred cats or dogs on an 8-point scale, and then researchers categorized them as either dog, cat, or neutral preference during data analysis. While the intent of this measure was to attempt to put everyone into one of these three categories on a singular question, it did create a problem of ambiguity in degree of admiration for these animals overall. As individuals did not have the

choice to say that they didn't like either animal, it's unclear from the data whether those who rated themselves as in the middle were attempting to indicate a love of both animals, or a dislike of both animals. Future research may remedy this by adding a question about overall strength of preference and level of admiration for either or both animals. It is worth noting here however that Study 1 included an option for participants to indicate they disliked both cats and dogs, and very few participants ($n = 2$) chose this answer.

Conclusions

Every step towards better understanding why individuals choose the animals that they do is one closer to reducing the number of pets that needlessly end up euthanized and abandoned in shelters. The present research sought to better understand if attachment styles of owners played a role in the animal they preferred and found that while there was no relationship between attachment and pet preference, those who had a neutral preference and anxious attachment were more likely to attribute theory of mind to dogs. Individuals also consistently attributed more theory of mind to dogs than to cats across both studies. The implications for this finding lie in the expectations that come alongside theory of mind attribution in dogs: that dogs are "people pleasers" and may be attributed a higher level of cognitive processing than they have. Ultimately, more research needs to be done in order to better understand how expectations and ascribed traits to different animals impact the lives of pets living in homes all over the world.

References

- Ainsworth, M. D. S., & Bell, S. M. (1970). Attachment, Exploration, and Separation: Illustrated by the Behavior of One-Year-Olds in a Strange Situation. *Child Development, 41*(1), 49–67.
<https://doi.org/10.2307/1127388>
- Alba, B., & Haslam, N. (2015). Dog People and Cat People Differ on Dominance-Related Traits. *Anthrozoös, 28*(1), 37–44. <https://doi.org/10.2752/089279315X14129350721858>
- Bahlig-Pieren, Z., & Turner, D. C. (1999). Anthropomorphic Interpretations and Ethological Descriptions of Dog and Cat Behavior by Lay People. *Anthrozoös, 12*(4), 205–210.
<https://doi.org/10.2752/089279399787000075>
- Bastian, B., Loughnan, S., Haslam, N., & Radke, H. R. M. (2012). Don't Mind Meat? The Denial of Mind to Animals Used for Human Consumption. *Personality and Social Psychology Bulletin, 38*(2), 247–256. <https://doi.org/10.1177/0146167211424291>
- Bertenshaw, C., & Rowlinson, P. (2009). Exploring Stock Managers' Perceptions of the Human—Animal Relationship on Dairy Farms and an Association with Milk Production. *Anthrozoös, 22*(1), 59–69. <https://doi.org/10.2752/175303708X390473>
- Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult attachment: An integrative overview. In *Attachment theory and close relationships* (pp. 46–76). The Guilford Press.
- Brown, C. M., Hengy, S. M., & McConnell, A. R. (2016). Thinking about Cats or Dogs Provides Relief from Social Rejection. *Anthrozoös, 29*(1), 47–58.
<https://doi.org/10.1080/20414005.2015.1067958>

Butterfield, M. E., Hill, S. E., & Lord, C. G. (2012). Mangy mutt or furry friend?

Anthropomorphism promotes animal welfare. *Journal of Experimental Social Psychology, 48*(4), 957–960. <https://doi.org/10.1016/j.jesp.2012.02.010>

Call, J., & Tomasello, M. (1999). A Nonverbal False Belief Task: The Performance of Children and Great Apes. *Child Development, 70*(2), 381–395. <https://doi.org/10.1111/1467-8624.00028>

Caspers, K. M., Cadoret, R. J., Langbehn, D., Yucuis, R., & Troutman, B. (2005). Contributions of attachment style and perceived social support to lifetime use of illicit substances. *Addictive Behaviors, 30*(5), 1007–1011. <https://doi.org/10.1016/j.addbeh.2004.09.001>

Cozzarelli, C., Karafa, J. A., Collins, N. L., & Tagler, M. J. (2003). Stability and change in adult attachment styles: Associations with personal vulnerabilities, life events, and global construals of self and others. *Journal of Social and Clinical Psychology, 22*(3), 315–346. <https://doi.org/10.1521/jscp.22.3.315.22888>

Curb, L. A., Abramson, C. I., Grice, J. W., & Kennison, S. M. (2013). The Relationship between Personality Match and Pet Satisfaction among Dog Owners. *Anthrozoös, 26*(3), 395–404. <https://doi.org/10.2752/175303713X13697429463673>

Davila, J., Burge, D., & Hammen, C. (1997). Why does attachment style change? *Journal of Personality and Social Psychology, 73*(4), 826–838.

Dawson, L., Cheal, J., Niel, L., & Mason, G. (2019). Humans can identify cats' affective states from subtle facial expressions. *Animal Welfare, 28*(4), 519–531. <https://doi.org/10.7120/09627286.28.4.519>

- Driscoll, C., Clutton-Brock, J., Kitchener, A., & O'Brien, S. (2009). The Taming of the cat. Genetic and archaeological findings hint that wildcats became housecats earlier—And in a different place—Than previously thought. *Scientific American*, *300*, 68–75.
- Emery, N. J., & Clayton, N. S. (2004). The Mentality of Crows: Convergent Evolution of Intelligence in Corvids and Apes. *Science*, *306*(5703), 1903–1907.
<https://doi.org/10.1126/science.1098410>
- Epley, N., Waytz, A., & Cacioppo, J. T. (2007). On seeing human: A three-factor theory of anthropomorphism. *Psychological Review*, *114*(4), 864–886.
- Fraley, R. C., & Davis, K. E. (1997). Attachment formation and transfer in young adults' close friendships and romantic relationships. *Personal Relationships*, *4*(2), 131–144.
<https://doi.org/10.1111/j.1475-6811.1997.tb00135.x>
- Gosling, S. D., Sandy, C. J., & Potter, J. (2010). Personalities of Self-Identified “Dog People” and “Cat People.” *Anthrozoös*, *23*(3), 213–222.
<https://doi.org/10.2752/175303710X12750451258850>
- Greenwood, A. (2018). Millions of dogs need homes. Why is it sometimes hard to adopt one? *Washington Post*.
<https://www.washingtonpost.com/news/animalia/wp/2018/02/02/millions-of-dogs-need-homes-why-is-it-sometimes-hard-to-adopt-one/>
- Guastello, A. D., Guastello, D. D., & Guastello, S. J. (2017). Personality Differences between Dog People and Cat People. *Human-Animal Interaction Bulletin*, *5*(1), 41–57.

- Hare, B., Brown, M., Williamson, C., & Tomasello, M. (2002). The Domestication of Social Cognition in Dogs. *Science*, *298*(5598), 1634–1636.
<https://doi.org/10.1126/science.1072702>
- Hare, B., & Tomasello, M. (2005). Human-like social skills in dogs? *Trends in Cognitive Sciences*, *9*(9), 439–444. <https://doi.org/10.1016/j.tics.2005.07.003>
- Hare, B., & Woods, V. (2013). *The Genius of Dogs: How Dogs Are Smarter Than You Think*. Penguin.
- Harrison, M. A., & Hall, A. E. (2010). Anthropomorphism, empathy, and perceived communicative ability vary with phylogenetic relatedness to humans. *Journal of Social, Evolutionary, and Cultural Psychology*, *4*(1), 34–48. <https://doi.org/10.1037/h0099303>
- Hawes, S. M., Kerrigan, J. M., Hupe, T., & Morris, K. N. (2020). Factors Informing the Return of Adopted Dogs and Cats to an Animal Shelter. *Animals*, *10*(9), 1573.
<https://doi.org/10.3390/ani10091573>
- Heyes, C. M. (1998). Theory of mind in nonhuman primates. *Behavioral and Brain Sciences*, *21*(1), 101–114.
- Horowitz, A. (2011). Theory of mind in dogs? Examining method and concept. *Learning & Behavior*, *39*(4), 314–317. <https://doi.org/10.3758/s13420-011-0041-7>
- Ilhan, T. (2012). Loneliness among University Students: Predictive Power of Sex Roles and Attachment Styles on Loneliness. *Educational Sciences: Theory and Practice*, *12*(4), 2387–2396.

- Kaminski, J., Call, J., & Tomasello, M. (2008). Chimpanzees know what others know, but not what they believe. *Cognition*, *109*(2), 224–234.
<https://doi.org/10.1016/j.cognition.2008.08.010>
- Kane, H. S., Jaremka, L. M., Guichard, A. C., Ford, M. B., Collins, N. L., & Feeney, B. C. (2007). Feeling supported and feeling satisfied: How one partner's attachment style predicts the other partner's relationship experiences. *Journal of Social and Personal Relationships*, *24*(4), 535–555. <https://doi.org/10.1177/0265407507079245>
- Kidd, A. H., Kidd, R. M., & George, C. C. (1992). Successful and Unsuccessful PET Adoptions. *Psychological Reports*, *70*(2), 547–561. <https://doi.org/10.2466/pr0.1992.70.2.547>
- Kogan, L., & Volsche, S. (2020). Not the Cat's Meow? The Impact of Posing with Cats on Female Perceptions of Male Dateability. *Animals*, *10*(6), 1007.
<https://doi.org/10.3390/ani10061007>
- Krupenye, C., Kano, F., Hirata, S., Call, J., & Tomasello, M. (2016). Great apes anticipate that other individuals will act according to false beliefs. *Science*, *354*(6308), 110–114.
<https://doi.org/10.1126/science.aaf8110>
- Loughnan, S., Haslam, N., & Bastian, B. (2010). The role of meat consumption in the denial of moral status and mind to meat animals. *Appetite*, *55*(1), 156–159.
<https://doi.org/10.1016/j.appet.2010.05.043>
- McConnell, A. R., Brown, C. M., Shoda, T. M., Stayton, L. E., & Martin, C. E. (2011). Friends with benefits: On the positive consequences of pet ownership. *Journal of Personality and Social Psychology*, *101*(6), 1239–1252. <https://doi.org/10.1037/a0024506>

McConnell, A. R., Lloyd, E. P., & Humphrey, B. T. (2019). We Are Family: Viewing Pets as Family Members Improves Wellbeing. *Anthrozoös*, *32*(4), 459–470.

<https://doi.org/10.1080/08927936.2019.1621516>

Meehan, M., Massavelli, B., & Pachana, N. (2017). Using Attachment Theory and Social Support Theory to Examine and Measure Pets as Sources of Social Support and Attachment Figures. *Anthrozoös*, *30*(2), 273–289. <https://doi.org/10.1080/08927936.2017.1311050>

Mikulincer, M., & Shaver, P. R. (2007). *Attachment in Adulthood: Structure, Dynamics, and Change*. Guilford Press.

Mitchell, R. W., & Ellis, A. L. (2013). Cat Person, Dog Person, Gay, or Heterosexual: The Effect of Labels on a Man's Perceived Masculinity, Femininity, and Likability. *Society & Animals*, *21*(1), 1–16. <https://doi.org/10.1163/15685306-12341266>

Morgan, C. L. (1894). *An introduction to comparative psychology*. W. Scott, Limited.

https://brocku.ca/MeadProject/Morgan/Morgan_1903/Morgan_1903_toc.html

Patronek, G. J., Glickman, L. T., & Moyer, M. R. (1995). Population Dynamics and the Risk of Euthanasia for Dogs in an Animal Shelter. *Anthrozoös*, *8*(1), 31–43.

<https://doi.org/10.2752/089279395787156455>

Payne, E., Bennett, P. C., & McGreevy, P. D. (2015). Current perspectives on attachment and bonding in the dog–human dyad. *Psychology Research and Behavior Management*, *8*, 71–79. <https://doi.org/10.2147/PRBM.S74972>

Penn, D. C., & Povinelli, D. J. (2007). On the lack of evidence that non-human animals possess anything remotely resembling a 'theory of mind.' *Philosophical Transactions of the Royal*

Society B: Biological Sciences, 362(1480), 731–744.

<https://doi.org/10.1098/rstb.2006.2023>

Perrine, R. M., & Osbourne, H. L. (1998). Personality Characteristics of Dog and Cat Persons.

Anthrozoös, 11(1), 33–40. <https://doi.org/10.1080/08927936.1998.11425085>

Podberscek, A. L. (2009). Good to Pet and Eat: The Keeping and Consuming of Dogs and Cats in

South Korea. *Journal of Social Issues*, 65(3), 615–632. [https://doi.org/10.1111/j.1540-](https://doi.org/10.1111/j.1540-4560.2009.01616.x)

[4560.2009.01616.x](https://doi.org/10.1111/j.1540-4560.2009.01616.x)

Pongracz, P., Molnar, C., Miklosi, A., & Csányi, V. (2005). Human Listeners Are Able to Classify

Dog (*Canis familiaris*) Barks Recorded in Different Situations. *Journal of Comparative*

Psychology (Washington, D.C. : 1983), 119, 136–144. [https://doi.org/10.1037/0735-](https://doi.org/10.1037/0735-7036.119.2.136)

[7036.119.2.136](https://doi.org/10.1037/0735-7036.119.2.136)

Premack, D., & Woodruff, G. (1978). Does the chimpanzee have a theory of mind? *Behavioral*

and Brain Sciences, 1(4), 515–526. <https://doi.org/10.1017/S0140525X00076512>

Romo, L. K., Lloyd, R., & Grimaila, Z. (2019). An Examination of Communicative Negotiation of

Non-Rescue Dog Stigma. *Society & Animals, aop*, 1–20.

<https://doi.org/10.1163/15685306-12341710>

Serpell, J. (2003). Anthropomorphism and Anthropomorphic Selection—Beyond the “Cute

Response.” *Society & Animals*, 11(1), 83–100.

<https://doi.org/10.1163/156853003321618864>

Serpell, J. A. (1996). Evidence for an association between pet behavior and owner attachment

levels. *Applied Animal Behaviour Science*, 47(1), 49–60. [https://doi.org/10.1016/0168-](https://doi.org/10.1016/0168-1591(95)01010-6)

[1591\(95\)01010-6](https://doi.org/10.1016/0168-1591(95)01010-6)

- Smith, Y. (2019). Chapter 25 - Pets and Human Diversity: Toward Culturally Competent, Culturally Humble Psychotherapy. In L. Kogan & C. Blazina (Eds.), *Clinician's Guide to Treating Companion Animal Issues* (pp. 477–496). Academic Press.
<https://doi.org/10.1016/B978-0-12-812962-3.00025-3>
- Tahiroglu, D., Moses, L. J., Carlson, S. M., Mahy, C. E. V., Olofson, E. L., & Sabbagh, M. A. (2014). The Children's Social Understanding Scale: Construction and validation of a parent-report measure for assessing individual differences in children's theories of mind. *Developmental Psychology*, *50*(11), 2485–2497. <https://doi.org/10.1037/a0037914>
- Terzi, Ş., & Çankaya, Z. C. (2009). The Predictive Power of Attachment Styles on Subjective Well Being and Coping With Stress of University Students. *Türk Psikolojik Danışma ve Rehberlik Dergisi*, *4*(31), 1–11. <https://doi.org/10.17066/pdrd.05129>
- Waytz, A., Morewedge, C. K., Epley, N., Monteleone, G., Gao, J.-H., & Cacioppo, J. T. (2010). Making sense by making sentient: Effectance motivation increases anthropomorphism. *Journal of Personality and Social Psychology*, *99*(3), 410–435.
<https://doi.org/10.1037/a0020240>
- Wei, M., Russell, D. W., Mallinckrodt, B., & Vogel, D. L. (2007). The Experiences in Close Relationship Scale (ECR)-Short Form: Reliability, Validity, and Factor Structure. *Journal of Personality Assessment*, *88*(2), 187–204. <https://doi.org/10.1080/00223890701268041>
- Wellman, H. M., Cross, D., & Watson, J. (2001). Meta-Analysis of Theory-of-Mind Development: The Truth about False Belief. *Child Development*, *72*(3), 655–684.
<https://doi.org/10.1111/1467-8624.00304>

- Wilkins, A. M., McCrae, L. S., & McBride, E. A. (2015). Factors affecting the Human Attribution of Emotions toward Animals. *Anthrozoös*, 28(3), 357–369.
<https://doi.org/10.1080/08927936.2015.1052270>
- Wimmer, H., & Perner, J. (1983). Beliefs about beliefs: Representation and constraining function of wrong beliefs in young children's understanding of deception. *Cognition*, 13(1), 103–128. [https://doi.org/10.1016/0010-0277\(83\)90004-5](https://doi.org/10.1016/0010-0277(83)90004-5)
- Wynne, C., D. L. (2005). The emperor's new anthropomorphism. *The Behavior Analyst Today*, 6(3), 151–154. <http://dx.doi.org/10.1037/h0100066>
- Zasloff, R. L. (1996). Measuring attachment to companion animals: A dog is not a cat is not a bird. *Applied Animal Behaviour Science*, 47(1), 43–48. [https://doi.org/10.1016/0168-1591\(95\)01009-2](https://doi.org/10.1016/0168-1591(95)01009-2)
- Zilcha-Mano, S., Mikulincer, M., & Shaver, P. R. (2011). An attachment perspective on human–pet relationships: Conceptualization and assessment of pet attachment orientations. *Journal of Research in Personality*, 45(4), 345–357.
<https://doi.org/10.1016/j.jrp.2011.04.001>
- Zilcha-Mano, S., Mikulincer, M., & Shaver, P. R. (2012). Pets as safe havens and secure bases: The moderating role of pet attachment orientations. *Journal of Research in Personality*, 46(5), 571–580. <https://doi.org/10.1016/j.jrp.2012.06.005>