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# Empathy and attitudes to animals

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## Abstract

*There is increasing support for the idea that human attitudes to animals may be indicative of human–human empathy. This has implications for the treatment of empathy deficits and related anti-social behaviors. The purpose of the present study was to explicitly investigate links between human–human empathy and attitudes to animals. The Interpersonal Reactivity Index (IRI) and Animal Attitude Scale (AAS) were administered to 194 undergraduate Sociology and Psychology students. A significant correlation between empathy levels, gender, companion animal ownership and attitudes to animals was found. Implications of these findings are discussed.*

**Keywords:** *AAS, Animal Attitude Scale, attitudes to animals, empathy, Interpersonal Reactivity Index, IRI*

Animals play an important part in the cultural, political and social arena of modern societies. Membership of animal protection organizations continues to grow (Garner 1998; Munro 2001) and books and articles concerning the philosophical place of animals continue to be published (e.g., Regan 2004). Governments are lobbied to change or create laws to protect animal welfare; perceived infringements of animal welfare remain news (e.g., live animal exports) and more and more people the world over indicate that companion animals play an important role in their lives and families (e.g., Arluke and Sanders 1996). The health benefits of companion animals are slowly being recognized (e.g., Beck and Katcher 1996; Herrald, Tomaka and Medina 2002), as are the therapeutic qualities of both wild and domestic animals (e.g., Anderson 1995; Beck and Katcher 2003). In short, animals are a part of the social fabric. Despite this, social scientists have been reticent at best, and oppositional at worst, to studying human–animal relationships (Arluke 2003). This is slowly changing with a dedicated cohort of multi-disciplinary scholars beginning to look at

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specific aspects of human–animal relations and human–animal interaction (Arluke and Sanders 1996; Taylor 1999; Benton 2003).

Within this growing body of literature, links between antisocial behavior and violence to animals are becoming apparent (e.g., Arluke et al. 1999). Specifically, links between lack of human-directed empathy, violence towards animals and violence towards humans are beginning to emerge (e.g., Ascione and Arkow 1999). Empathy has been proposed as a mediating factor in aggression to both humans and animals, with a number of authors suggesting links between deficits in empathy and antisocial behavior in children, adolescents, and adults in both clinical and non-clinical populations (e.g., Hastings et al. 2000; Warden and Mackinnon 2003). Furthermore, it has been suggested that animal-directed empathy may generalize to human-directed empathy (Ascione 2001). Hence, humane education is being posited as one particularly effective mechanism whereby a lack of human-directed empathy may be remedied by teaching animal-welfare appropriate attitudes (Ascione 1992; Ascione and Weber 1996; Barker et al. 2000).

Factors known to affect attitudes towards animals include personality (Broida et al. 1993; Mathews and Herzog 1997), gender and sex role orientation (Herzog, Betchart and Pittman 1991; Hills 1993), religious and/or political stance (Bowd and Bowd 1989; Kimball 1989), ethical ideology (Galvin and Herzog 1992), companion animal ownership (Paul and Serpell 1993), and other demographic variables such as age and race (Kellert 1988). For example, previous research has suggested that the presence of a companion animal during childhood may lead to an increased sensitivity to the feelings and attitudes of others (Serpell 1996). Paul and Serpell (1993) found an association between childhood companion animal keeping and increased concern about animal and human welfare, as did Paul (2000). In contrast to this, Daly and Morton (2003) in a survey of 137 children, failed to find any differences in empathy levels between pet owners and non-owners. Their results also showed no correlation between empathy and attachment to pets as measured by the Companion Animal Bonding Scale.

Therefore the links between companion animal ownership and measures of empathy and attitudes to animals deserve further attention. Given the potential importance of attitudes towards animals and humane education in designing strategies for remedying deficits in empathy and therefore anti-social behavior, it is important that specific links between empathy and attitudes to animals be quantified along with potential variables that may impact this relationship.

Mathews and Herzog (1997) go some way to achieving this in their report on a questionnaire-based investigation of links between a general personality measure (The Sixteen Personality Factor Questionnaire, 16PF) and the Animal Attitude Scale. According to their analyses, the correlations found between personality and attitudes to animals were generally low and non-significant, with the exception of two sub-scales which measured sensitivity and imagination. While this study (and others using the AAS, e.g., Herzog, Betchart and Pittman 1991) provide a starting place for this kind of investigation, empathy is treated within them as a by-product of other personality traits rather than as an attribute in its own right.

Various definitions of empathy exist (e.g., Hogan 1969), however, most recent definitions of empathy involve a multidimensional empathy construct (e.g., Davis 1980; Cohen and Strayer 1996; Alterman et al. 2003). These center on two components; understanding (cognitive) and sharing (affective) another's emotional state (Eisenberg and Strayer 1987). Cohen and Strayer (1996) expand this by defining the affective component as having emotional responses in line with another's emotion, and the cognitive, as the ability to recognize and understand another's emotion. Empathy in the current study will be defined as the ability to understand and share in another's emotional state (Eisenberg and Strayer 1987)

Empathy has been measured in a number of ways in the literature, one of the most commonly used, and arguably the most comprehensive (Alterman, et al. 2003) self-report measure is the Interpersonal Reactivity Index (IRI), developed by Davis (1980). The IRI, itself a multidimensional measure of empathy, has been used successfully to assess empathy levels within a variety of clinical and forensic populations (e.g., Lee and Prentice 1988; Gurtman 1992; Alterman et al. 2003). Whilst detractors argue that alternative methods of assessing empathy (e.g., role-play, scenario and physiological measures) may be more appropriate, it has been shown that self-report measures are superior in a number of ways, e.g., efficiency and accuracy (e.g., Miller and Eisenberg 1988). Whether empathy is a learned ability or a more fixed personality trait is still a topic of debate in the literature (e.g., Daly and Morton 2003). The IRI has been constructed with the view that empathy is influenced by environmental events and personal experience and as such has been used to track the development of empathy over time in children and adolescents (Hatcher et al. 1994). A particular strength is its four-factor structure which allows the measurement of quantifiably different aspects of empathy (which may or may not develop at different developmental stages).

Given the potential that establishing these links may have for early intervention and prevention of antisocial behavior (for example via humane education interventions) (Ascione and Weber 1996), it stands to reason that links between empathy and attitudes to animals need to be more explicitly investigated. Hence, the purpose of this current paper is to specifically investigate potential links between human–human empathy and attitudes to animals. However, it is important to note at this point that determining causal links between empathy and attitudes to animals is beyond the scope of this paper.

A significant, positive link between empathy and attitudes to animals generally was anticipated, and it was also expected that gender differences would be observed within these measures. It was further anticipated that companion animal ownership (both now and in childhood) would affect both empathy and attitudes to animals, as measured by the IRI and AAS.

## **Methods**

### **Participants**

One hundred and ninety-four (161 female, 33 male) undergraduate Sociology and Psychology students from Central Queensland University, Australia, participated in this project. Students were informed of this project during class time and via an online notice-board. Participation was voluntary and students were given the opportunity to complete the questionnaire in their own time, thus creating a convenience sample. Age of participants ranged from 18 to 56 years; the average age was 28 years. Approximately 87% of respondents identified themselves as living in a regional area of Australia, 10% as living in an urban area and 3% were currently residing outside of Australia.

### **Materials**

#### **Animal Attitude Scale (AAS)**

The AAS is a 20-item, 5-point Likert scale-based questionnaire with respondents giving responses ranging from Strongly Disagree to Strongly Agree to statements regarding attitudes to animals. Sample items include “Wild animals should not be trapped and their skins made into fur coats,” “Basically humans have the right to use animals as they see fit,” and “The use of animals in rodeos and circuses is cruel.” The scale has high internal consistency (Cronbach’s  $\alpha = 0.91$ ; Mathews and Herzog 1997) and has previously been used successfully (e.g., Herzog, Betchart and Pittman 1991). However, validity has not been specifically assessed. A high score on this scale indicates pro-welfare attitudes (H. Herzog, personal communication 2004).

## Interpersonal Reactivity Index (IRI)

The Davis Interpersonal Reactivity Index (IRI) (Davis 1980), one of the most commonly used and, according to Alterman et al. (2003), the most comprehensive measure of empathy, is a 28-item self-report measure consisting of four sub-scales. Items within the IRI are answered using a five-point scale, ranging from Strongly Disagree to Strongly Agree. Examples of these items include “I often have tender, concerned feelings for people less fortunate than me,” “I sometimes find it difficult to see things from the ‘other guy’s’ point of view,” and “Sometimes I don’t feel very sorry for other people when they are having problems.”

The IRI consists of four sub-scales: Empathic Concern (EC - measuring feelings of warmth, compassion and concern for others); Perspective Taking (PT - assessing an individual’s ability to adopt other-orientated perspectives); Fantasy (FS - assessing tendencies to identify with fictional characters), and Personal Distress (PD - measuring feelings of discomfort resulting from another’s misfortune) (Alterman et al. 2003). All of these have been found to have acceptable internal consistency and high test-retest reliability (Davis 1980). Subsequent analyses have found the four sub-scales to be highly correlated with other measures of empathy (Alterman et al. 2003), although several studies have suggested the use of either the EC scale alone (Cohen and Strayer 1996) or a combined ECPT scale, as the validity of the PD sub-scale within a central measure of empathy has been questioned (Alterman et al. 2003).

## Results

Raw data from 194 participants was entered into SPSS (v11.5). Negatively worded items in the IRI and AAS were recoded before the following analyses were conducted. Missing data resulted in 171 valid entries for the AAS and 191 for the IRI and sub-scales.

Pearson product-moment correlations between the sub-scales of the IRI and AAS scores are presented in Table 1. Positive correlations indicate a tendency for higher levels of an IRI sub-scale to be related to higher scores on the AAS, indicating a pro-animal attitude. Moderate significant correlations (at the 0.01 level) were found between Empathic Concern and the AAS. Further analysis of this relation by gender showed a significant correlation (at the 0.01 level) between AAS and EC for female participants only ( $r = 0.31$ ), with males having a non-significant correlation of 0.28 between these variables.

An independent groups t-test was conducted and a significant gender difference was found in the AAS scores ( $t = -3.376, p < 0.001$ ), with females scoring higher ( $M = 71.9, n = 144$ ) than males ( $M = 65.1, n = 27$ ).

**Table 1.** Correlations between Interpersonal Reactivity Index sub-scales and the Animal Attitude Scale.

IRI	AAS
Empathic Concern (EC)	0.333**
Perspective Taking (PT)	0.065
Personal Distress (PD)	0.106
Fantasy Scale (FS)	0.091

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

animal ( $n = 129$ ) had significantly higher AAS scores ( $t = 2.011, p < 0.05$ ) than those who did not currently have a companion animal ( $n = 42$ ). In contrast, there was no significant difference in AAS scores between those who had companion animals while growing up and those who did not.

A multiple, stepwise regression was conducted to assess the importance of gender and the IRI sub-scales on individual differences in attitudes to animals. AAS scores were entered as the dependent variable with gender, EC, PT, PD, FS and total IRI entered as independent variables. The analysis indicated that two variables, EC and gender, were significant predictors of AAS scores. Together these variables accounted for 13.7% of the variance in the AAS scores (adjusted  $r^2 = 0.137, F_{(1,166)} = 14.29, p < 0.0001$ ). The IRI sub-scale EC ( $beta = 0.331, t = 4.53, p < 0.0001$ ) accounted for more variance (10.9%) than gender ( $beta = 0.198, t = 2.7, p < 0.01$ ).

## Discussion

The aim of this project was to investigate potential links between human–human empathy and attitudes to animals using the IRI and the AAS. A moderate but significant correlation was found between empathy and the AAS. The psychological literature has indicated that the EC sub-scale of the IRI is a good general empathic construct (Cohen and Strayer 1996; Alterman, et al. 2003). This proved to be the only IRI sub-scale with a significant relation with scores on the AAS, which corroborates the findings of Furnham, McManus and Scott (2003). This indicates that those with higher EC scores have a more welfare-orientated attitude to animals. This correlation (0.33) is stronger than that reported by Mathews and Herzog (1997) between the AAS and a more general personality measure. This suggests that when considering empathy as a specific construct, rather than subsumed within general personality, there is a substantive link

Further independent group t-tests were conducted to examine the effect of current companion animal ownership and family companion animal ownership (in childhood) on AAS scores. Those who identified themselves as currently owning a companion

between it and attitudes to animals. Therefore this result supports the premise of using humane education (to promote animal-welfare appropriate attitudes) as an early intervention measure to break cycles of antisocial behavior by engendering human–human empathy. It also demonstrates a need for further research in this area.

As has been found in previous research (e.g., Herzog, Betchart and Pittman 1991), females scored significantly higher overall in the AAS than males, indicating a more pro-animal welfare attitude. When analyzing the interrelations between the IRI sub-scales and the AAS by gender, only females showed a significant correlation between the EC sub-scale and the AAS. This may reflect the general finding that females score higher on measures of empathy than males (Alterman et al. 2003), and may go some way to explaining the higher participation of women in animal protection movements (Groves 1997). However, it is important to point out that average AAS scores of both male and female participants fell well into the pro-animal welfare side of the scale (possible scores on the AAS range from 20 to 100, female  $M = 72$ , male  $M = 65$ ). It should also be noted that there were appreciably fewer male than female participants in our study; future research should address this imbalance.

Mathews and Herzog (1997) found that gender was the most significant predictor of AAS scores. Interestingly, the EC sub-scale explained the most variability in AAS scores in the current study, suggesting again that empathy levels (as measured by the EC sub-scale) are intrinsically linked to AAS scores.

As expected, our analysis of companion animal ownership indicated that those currently living with a companion animal had significantly higher AAS scores than those living without. What was not expected was the finding that whether an individual had a companion animal throughout their childhood did not result in any significant differences, which contradicts earlier research (e.g., Paul 2000). However, as noted for gender, it must be acknowledged that the numbers of individuals who did not either currently have a companion animal or did not have one while growing up were relatively small. Again this indicates an area in need of future research. For example, Paul and Serpell (1993) suggest that awareness of the experiences that underlie attitudes to animal welfare may aid in the development of effective humane education interventions and programs.

A limitation of the current study is that all respondents were university students, who may not be representative of the wider community or specific interest groups such as those within animal protection communities. However, this is one of the few large-scale studies to specifically investi-



gate animal attitudes within Australia, and particularly regional Australia (for exceptions see Bowd and Bowd 1989).

In conclusion, the results from this study indicate that there is a significant link between human–human empathy and attitudes to animals, which may outweigh previously found gender differences. This, combined with the findings regarding the effect of companion animal ownership on both empathy and attitudes to animals, is a worthy area for further study.

## References

- Alterman, A. I., McDermott, P. A., Cacciola, J. S. and Rutherford, M. J. 2003. Latent structure of the Davis Interpersonal Reactivity Index in Methadone maintenance patients. *Journal of Psychopathology and Behavioral Assessment* 25(4): 257–265.
- Anderson, W. 1995. The benefits of pet ownership. *The Medical Journal of Australia* 64(7): 441.
- Arluke, A. 2003. Ethnozoology and the future of sociology. *International Journal of Sociology and Social Policy* 23(3): 26–45.
- Arluke, A., Levin, J., Luke, C. and Ascione, F. 1999. The relationship of animal abuse to violence and other forms of antisocial behavior. *Journal of Interpersonal Violence* 14(9): 963–975.
- Arluke, A. and Sanders, C. 1996. *Regarding Animals*. Philadelphia: Temple University Press.
- Ascione, F. R. 1992. Enhancing children's attitudes about the humane treatment of animals: Generalization to human-directed empathy. *Anthrozoös* 5(3): 176–191.
- Ascione, F. R. 2001. Animal abuse and youth violence. *OJJDP: Juvenile Justice Bulletin* September: 1–15.
- Ascione, F. R. and Arkow, P. eds. 1999. *Child Abuse, Domestic Violence, and Animal Abuse: Linking the Circles of Compassion for Prevention and Intervention*. Lafayette: Purdue University Press.
- Ascione, F. R. and Weber, C. V. 1996. Children's attitudes about the humane treatment of animals and empathy: One-year follow-up of a school-based intervention. *Anthrozoös* 9: 188–195.
- Barker, S. B., Best, A. M., Fredrickson, M. and Hunter, G. 2000. Constraints in assessing the impact of animals in education. *Anthrozoös* 13(2): 74–79.
- Beck, A. and Katcher, A. 1996. *Between Pets and People: The Importance of Animal Companionship*. Indiana: Purdue University Press.
- Beck, A. and Katcher, A. H. 2003. Future directions in human–animal bond research. *The American Behavioral Scientist* 47(1): 79.
- Benton, T. 2003. Marxism and the moral status of animals. *Society & Animals* 11(1): 73–79.
- Bowd, A. D. and Bowd, A. C. 1989. Attitudes towards the treatment of animals: A study of Christian groups in Australia. *Anthrozoös* 3(1): 20–24.
- Broida, J., Tingley, L., Kimball, R. and Miele, J. 1993. Personality differences between Pro- and Anti-vivisectionists. *Society & Animals* 1(2): 129–144.
- Cohen, D. and Strayer, J. 1996. Empathy in conduct-disordered and comparison youth. *Developmental Psychology* 32(6): 988–998.

- Daly, B. and Morton, L. L. 2003. Children with pets do not show higher empathy: A challenge to current views. *Anthrozoös* 16(4): 298–314.
- Davis, M. H. 1980. A multidimensional approach to individual differences in empathy. *JSAS Catalogue of Selected Documents in Psychology* 10: 85.
- Eisenberg, N. and Strayer, J. 1987. Critical issues in the study of empathy. In *Empathy and Its Development*, 3–13, eds. N. Eisenberg and J. Strayer. Cambridge: Cambridge University Press.
- Furnham, A., McManus, C. and Scott, D. 2003. Personality, empathy and attitudes to animal welfare. *Anthrozoös* 16(2): 135–146.
- Galvin, S. and Herzog, H. 1992. Ethical ideology, animal activism and attitudes towards the treatment of animals. *Ethics and Behavior* 2: 141–149.
- Garner, R. 1998. *Political Animals: Animal Protection Politics in Britain and the United States*. London: Macmillan.
- Groves, J. M. 1997. *Hearts and Minds: The Controversy over Laboratory Animals*. Philadelphia: Temple University Press.
- Gurtman, M. B. 1992. Construct validity of interpersonal personality measures: The interpersonal circumplex as a nomological net. *Journal of Personality and Social Psychology* 63(1): 105–118.
- Hastings, P. D., Zahn-Waxler, C., Robinson, J., Usher, B. and Bridges, D. 2000. The development of concern for others in children with behavior problems. *Developmental Psychology* 36(5): 531–546.
- Hatcher, S. L., Nadeau, M. S., Walsh, L. K., Reynolds, M., Galea, J. and Marz, K. 1994. The teaching of empathy for high school and college students: testing Rogerian methods with the Interpersonal Reactivity Index. *Adolescence* 29(116): 961–974.
- Herrald, M. M., Tomaka, J. and Medina, A.Y. 2002. Pet ownership predicts adherence to cardiovascular rehabilitation. *Journal of Applied Social Psychology* 32(6): 1107–1123.
- Herzog, H., Betchart, N. and Pittman, R. 1991. Sex role identity and attitudes toward animals. *Anthrozoös* 4(3): 184–192.
- Hills, A. M. 1993. The motivational bases of attitudes toward animals. *Society & Animals* 1: 111–128.
- Hogan, R. 1969. Development of an empathy scale. *Journal of Consulting and Clinical Psychology* 33: 307–316.
- Kellert, S. R. 1988. Human–animal interactions: A review of American attitudes toward wild and domestic animals in the 20th century. In *Animals and People Sharing the World*, 137–175, ed. A. N. Rowan. Hanover, NH: University Press of New England.
- Kimball, R. 1989. Liberal/Conservative voting records compared to interest in animal protection bills. *PsyETA Bulletin* 9: 7–9.
- Lee, M. and Prentice, N. 1988. Interrelations of empathy, cognition, and moral reasoning with dimensions of juvenile delinquency. *Journal of Abnormal Child Psychology* 16: 127–139.
- Mathews, S. and Herzog, H. 1997. Personality and attitudes towards the treatment of animals. *Society & Animals* 5(2): 57–63.
- Miller, P. A. and Eisenberg, N. 1988. The relation of empathy to aggressive and externalizing/antisocial behavior. *Psychological Bulletin* 103(3): 324–344.

- Munro, L. 2001. *Compassionate Beasts: The Quest for Animal Rights*. USA: Praeger.
- Paul, E. S. 2000. Empathy with animals and with humans: Are they linked? *Anthrozoös* 13(4): 194–202.
- Paul, E. S. and Serpell, J. A. 1993. Childhood pet keeping and humane attitudes in young adulthood. *Animal Welfare* 2(4): 321–337.
- Regan, T. 2004. *Empty Cages: Facing the Challenge of Animal Rights*. USA: Rowman and Littlefield Publishing.
- Serpell, J. 1996. *In the Company of Animals: A Study of Human–Animal Relationships*. Cambridge: Cambridge University Press.
- Taylor, N. 1999. Respecifying animals: Sociological aspects of human–animal relations. Unpublished PhD thesis, Manchester Metropolitan University.
- Warden, D. and Mackinnon, S. 2003. Prosocial children, bullies and victims: An investigation of their sociometric status, empathy and social problem-solving strategies. *British Journal of Developmental Psychology* 21: 367–385.