

Relating Low Perceived Control and Attitudes toward Animal Training: An Exploratory Study

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ABSTRACT The goal of the current study was to examine the relationship between perceived control and views of animal training practices. Four hundred and thirty-seven participants completed a measure of perceived control in caregiving situations (Parent Attribution Test) and a 55-item questionnaire assessing attitudes toward a variety of animal training techniques used with dogs, circus animals, and livestock. A factor analysis of the items on the animal training questionnaire revealed three main factors: general use of physical punishment, withholding food and/or whipping, and using electrical shocks. Stepwise regression analyses were used to examine potential predictors of the tendency to endorse these three general types of animal training techniques. Significant predictors of the general use of punishment included gender, perceived control, experience with obedience school, and education level. Withholding of food and/or whipping were predicted by gender, with males more likely to endorse such practices. Significant predictors of electrical shock included gender and perceived control, with males and those with a lower perceived control more likely to endorse the treatment. Overall, the data suggest that perceived control in a caregiving situation may be an important predictor of attitudes toward animal training techniques involving punishment.

Keywords: animal training, attitudes, Parent Attribution Test, perceived control, punishment



A wide variety of training techniques are available for use with animals. Generally speaking, these techniques tend to involve either positive reinforcement (e.g., clicker training) or punishment (e.g., shock collars). In pet training practices with domestic animals, there

has been a shift from harsher training practices to positive reinforcement training because it is believed that it enhances the bond between trainer and pet and can yield better results if done correctly (HSUS 2007). In the laboratory, researchers have recently stressed the importance of using positive reinforcement training techniques to enhance and protect the well-being of laboratory animals (e.g., Laule, Bloomsmith and Shapiro 2003). Indeed, past laboratory research has shown that the use of physical punishment such as electric shocks delivered to the foot can even cause friendly cats to become aggressive towards other cats and other animals (Ulrich, Wolff and Azrin 1964).

Outside of the laboratory environment, researchers examining the use of electric shocks with police service dogs have also found that punishment led to a decreased well-being of the animals involved (Schilder and van der Borg 2004). Specifically, dogs that were shocked via shock collars exhibited high frequencies of signs of stress, fear, and pain (e.g., lowering of ear position, high sounding yelps, tongue flicking, lowering of tail position, and squealing). These results are consistent with research showing that training methods such as physical restraint, loud noises, and quick movements can create restlessness and acute stress in dogs, as evidenced by cortisol level and body posture (Beerda et al. 1998).

Research on the effects of training techniques has not only examined dogs and cats, but also other animals that may potentially benefit from positive reinforcement techniques such as non-human primates and elephants. For example, Schapiro, Bloomsmith and Laule (2003) examined the benefits of using positive reinforcement techniques to improve the welfare of rhesus macaques and chimpanzees in the laboratory. Also, in the Association of Zoos and Aquariums' (2003) list of standards for the treatment of elephants, there is a noticeable shift away from the traditional harsher training techniques used in the past to more positive techniques. Specifically, one guideline highlights the inappropriateness of "striking an elephant with anything more substantial than an ankus [a traditional training tool used by elephant trainers]" (p. 7). In general, research supports the idea that the benefits of using training techniques such as positive reinforcement extend beyond dogs and may generalize to many animal species.

The present study examines whether a cognitive attributional style (Low Perceived Control) that has been linked to child abuse (Bugental, Blue and Cruzcosa 1989; Bugental, Mantyla and Lewis 1989; Bradley and Peters 1991) and differential interactions with young companion animals (Sims et al. 2001) can be used to predict attitudes toward various animal training techniques and punishment styles including electric shocks, withholding food, and whipping.

Low perceived control over caregiving is commonly measured using the Parent Attribution Test (PAT) (Bugental, Blue and Cruzcoza 1989). The PAT contains hypothetical scenarios that describe either a successful or failed interaction with a child. The respondent then must make attributions for why the outcome was or was not successful. Attributions for the failed situation are scored on two scales: Adult Control of Failure (ACF) and Child Control of Failure (CCF). Individuals who score both below the median (i.e., "low") on ACF and above the median (i.e., "high") on CCF are considered "Low Perceived Control" (LPC). That is, they perceive themselves at a power disadvantage relative to the child. A continuous measure of perceived control also can be obtained by subtracting one's CCF score from one's ACF score (Bugental et al. 2002; Bugental and Happaney 2004). This Low Perceived Control index (LPC index) can then be used as a predictor variable for a variety of caregiver interactions.

Research examining low perceived control has found that when LPC individuals are placed in a difficult situation with a child, they display both more negative affect and stronger signs of defensive arousal (Bugental, Blue and Lewis 1990; Bugental et al. 1993; Bugental, Brown and Reiss 1996). These individuals also display increased physiological arousal even when *anticipating* an interaction with a difficult child (Bugental and Cortez 1988). This finding suggests that LPC individuals have stored mental schemas regarding their perceived powerlessness, and that these schemas can be activated through internal thoughts, as well as external means. When interacting with a difficult child, LPC individuals also show marked decrements in cognitive abilities, including memory of the events (Bugental, Brown and Reiss 1996) and less effective linguistic structures (Bugental and Lewis 1999; Bugental and Shennum 1984). Ironically, this drop in cognitive functioning may lead to even less effective strategies for interacting with the child and gaining control of the situation.

Perceived control over caregiving also has been investigated in the context of child abuse. This work has shown that LPC mothers in counseling for child abuse were more likely to have physically abused their child or to have used coercive parenting strategies than were their non-LPC counterparts (Bugental, Blue and Cruzcoza 1989). Similarly, abusive mothers are more likely to score high on the Child Control over Failure (CCF) subscale of the PAT (Bradley and Peters 1991), demonstrating that they attribute a great deal of power in the situation to the child.

In accordance with research on low perceived control and child abuse, studies examining motivation for animal cruelty have found that abuse is linked both to “need to control” (Kellert and Felthous 1985) and engagement in harsh dominance training (Vermeulen and Odendaal 1993). Ascione (1993) and Felthous (1980) have argued that animal cruelty may be a function of the misattribution of aggression to animal behaviors, and the following attempt to control the perceived aggression. Felthous (1980) further argues that animals that are difficult to control are more likely to be the targets of aggression.

Animal training shares many attributes with adult–child interactions that involve training, including a need to assert dominance. Given this similarity, it is logical that LPC status might influence participants during human–animal interactions. Sims et al. (2001) investigated LPC status as a predictor of interactions with companion animals. In their study, LPC and non-LPC individuals attempted to train a puppy to complete three simple tasks. After only one minute of interaction, LPC individuals reported a significant drop in affect, and after the interaction, they rated the puppy as less cute and more aggressive than did non-LPC individuals. Although this study demonstrated that perceived control over caregiving predicts interactions with companion animals, it did not test whether LPC status can predict attitudes toward training methods, nor did it examine interactions between humans and non-companion animals such as livestock and circus animals. The present study examines whether LPC status can be used to predict attitudes toward training techniques used to control dogs, livestock, and performance animals. It is predicted that LPC individuals will endorse more coercive and harsh training methods than non-LPC individuals.

Methods

Participants

Four hundred and thirty-seven undergraduates (309 females and 128 males) from a state university located in a large metropolitan area in the southeastern United States participated to fulfill a partial course requirement or in order to obtain extra credit in psychology courses.

The mean age of participants was 19.76 years ($SD = 4.09$). Seventy-one percent reported their race as Caucasian, 16% reported their race as Hispanic/Non-White; 63% reported their marital status as single, 30% reported they were dating or in a long-term relationship; 71% had a high school diploma, 20% had an Associate's Degree; 53% owned a cat; 85% owned a dog; 20% had experience with professional dog training; 6% had children; 9% had lived on a farm; 61% spent the bulk of their life in a suburban area, 25% in a urban area, and 14% in a rural area.

Materials

Participants responded to 55 questions regarding the appropriateness of various types of animal training techniques, with many questions specifically targeting forms of punishment. Each item referred to one of three animal types: dog, circus animal, or livestock. Responses to the questions were made using a 7-point rating scale (1 = "Strongly Disagree" and 7 = "Strongly Agree"). Eleven of the questions were negatively worded, and thus required reverse-scoring. Examples of the animal training questions are in Table 2.

Next, participants completed the Parent Attribution Test (PAT; Bugental, Blue and Cruzcoza 1989), a standardized questionnaire that measures participants' perceived control during caregiving interactions with children. Previous research has found the test-retest reliability of the PAT to be acceptable (Bugental, Blue and Cruzcoza 1989).

After completing the PAT, participants completed a short form of the Marlowe-Crowne Social Desirability Scale (M-C SDS; Reynolds 1982). The M-C SDS is a reliable ($\alpha = 0.76$; Reynolds 1982) version of the full scale that measures the general tendency for participants to present themselves in a manner that makes them seem likable to others.

Next, participants completed the 20-item Vengeance Scale (Stuckless and Goranson 1992), which was included only for exploratory purposes. This scale has been found to be a reliable measure ($\alpha = 0.92$) of "attitudes toward revenge" and "individual differences in response to revenge-eliciting situations."

A final section contained demographic questions, including items assessing gender, age, race/ethnicity, marital status, number of children, level of education, cat and dog ownership, farm experience, most frequent residential type of area lived in, state and country of residence, and whether they had ever received professional assistance with training an animal.

Procedure

Participants completed the questionnaire online via a secure website with access restricted to the research participants only. It took approximately 20 minutes. Prior to participation, students gave their informed consent. After completion of the study, participants were provided with a written debriefing statement describing the study and listing contact information of the researchers. Prior to data collection, the university's Institutional Review Board approved the study.

Results

Factor Analysis

A principal component analysis with Varimax rotation was used to determine the factor structure of the ratings given on the 55 questions assessing agreement with various forms of animal punishment. In accordance with Zwick and Velicer's (1986) recommendation that both parallel analysis (PA) and Velicer's minimum average partial (MAP) test should be used to determine the number of components to retain, SPSS programs (O'Connor 2000) were used to calculate the number of components that should be retained. The PA suggested retaining five

Table 1. Eigenvalues, percentages of variance, and cumulative percentage for components of the 55-item questionnaire regarding the appropriateness of various types of animal training techniques, post principal components analysis (nine-factor solution).

Component	Eigenvalue	% of Variance	Cumulative %
1	9.07	16.49	16.49
2	4.40	8.00	24.49
3	2.78	5.06	29.54
4	2.04	3.71	33.26
5	1.91	3.47	36.72
6	1.66	3.03	39.75
7	1.53	2.78	42.53
8	1.51	2.75	45.28
9	1.39	2.52	47.80

components and the MAP test suggested retaining nine. In light of the exploratory nature of this study and the interpretability of the components, it was decided that nine factors should be kept. The variance accounted for by each of the nine factors is shown in Table 1.

To help simplify the labeling of factors, items with loadings of less than 0.4 were dropped from further analysis. The items with loadings greater than 0.4 are shown in boldface in Table 2. In general, the items on Factor 1 pertained to general use of physical punishment across the three types of animals; the items on Factor 2 were related to withholding food and/or whipping circus animals and livestock, but not dogs; Factor 3 items were associated with the use of electrical shocks to control all three types of animals; Factor 4 items were related to whether animals intend to make their owners/trainers upset; Factor 5 items involved shouting at animals when they misbehave; Factor 6 items were associated with viewing dogs as property as opposed to companions; Factor 7 items were related to displaying zoo animals; Factor 8 items involved the treatment of livestock; and Factor 9 items were associated with using timeout as a form of punishment.

Factor Scores

Nine factor scores were created based on the results of the factor analysis by summing across items that loaded highly (> 0.4) on each of the nine factors. Items were weighted with the loadings shown in boldface in Table 2. A series of one-sample t -tests were then used to see if each of these factor scores deviated significantly from the “neutral” point of 4 on a 7-point scale. Results indicated that participants did not endorse items having to do with general punishment ($M = 2.56$, $SD = 1.05$; $t_{(436)} = 28.77$, $p < 0.001$), withholding food and/or whipping circus and livestock animals ($M = 1.96$, $SD = 0.57$; $t_{(436)} = 49.89$, $p < 0.001$), and using electric shocks to control animals ($M = 3.31$, $SD = 1.54$; $t_{(436)} = 9.40$, $p < 0.001$). Furthermore, participants did not endorse items having to do with intentional upsetting ($M = 1.61$, $SD = 0.82$; $t_{(436)} = 61.01$, $p < 0.001$), shouting at animals for misbehavior ($M = 2.85$, $SD = 0.76$; $t_{(436)} = 31.73$, $p < 0.001$), and viewing dogs as “property” ($M = 0.95$, $SD = 0.48$; $t_{(436)} = 131.60$, $p < 0.001$). Finally, participants did not endorse items dealing with displaying zoo animals ($M = 2.72$, $SD = 0.48$; $t_{(436)} = 55.27$, $p < 0.001$), livestock treatment ($M = 2.79$, $SD = 0.46$; $t_{(436)} = 55.43$, $p < 0.001$), and using “timeout” as punishment ($M = 3.45$, $SD = 1.21$; $t_{(436)} = 9.61$, $p < 0.001$).

Table 2. The 55 questions regarding the appropriateness of various types of animal training and their factor loadings (rotated) in the nine-component solution (principal component analysis). Factor loadings of 0.4 and above are in bold.

	Component								
	1	2	3	4	5	6	7	8	9
If a dog does not comply to a command given to it, you need to hit it to let the dog know who is boss	0.69	0.04	0.05	0.13	0.11	0.08	0.04	-0.03	0.06
It is NOT appropriate to use physical punishment/force if a dog does not comply with a training command	-0.64	0.14	-0.05	-0.03	-0.07	-0.12	-0.06	-0.15	0.13
When giving a performance animal a command, if the animal does not do it, it is acceptable to hit him to let him know who is boss	0.63	0.22	0.08	0.07	0.21	-0.05	0.09	-0.09	0.02
It is appropriate to use physical punishment/force if the animal does not comply with a training command	0.62	0.18	0.28	0.13	0.17	0.16	0.05	0.02	0.04
It is appropriate to hit a dog with a newspaper when it does not listen to you	0.62	0.05	0.05	0.10	0.11	0.00	0.07	0.11	0.22
It is appropriate to use physical punishment/force if livestock does not comply with a command	0.59	0.27	0.34	0.11	0.23	0.08	-0.03	0.05	-0.08
It is appropriate to use physical punishment/force if a zoo animal does not comply with a command	0.57	0.18	0.31	0.11	0.23	0.19	0.16	-0.08	-0.04
It is appropriate to whip livestock to get an animal to move somewhere that it does not want to go	0.43	0.42	0.30	-0.06	0.15	0.10	-0.02	0.18	-0.06
It is NOT appropriate to whip zoo animals to get them to move somewhere they do not want to go	-0.43	-0.19	-0.05	-0.07	-0.05	-0.09	-0.01	-0.07	-0.05
It is appropriate to withhold food from livestock if it does not comply with commands	0.12	0.70	0.04	0.20	0.00	0.14	-0.03	0.13	0.17
It is appropriate to withhold food from the animals in the zoo if they aren't lively enough for the zoo patrons	0.08	0.69	0.07	0.19	0.00	0.27	0.09	-0.11	-0.04
It is appropriate to withhold an animal's daily food intake if it does not comply with the trainer	0.13	0.64	0.02	0.17	0.01	0.40	0.02	-0.06	0.05
It is appropriate to whip a performance animal if it does not perform well	0.40	0.53	0.11	0.09	0.12	0.12	0.03	-0.08	-0.02
Livestock should be treated well before being slaughtered	-0.08	-0.52	0.03	-0.24	0.07	0.03	-0.06	-0.06	0.06
I believe that animal training is very stressful for the animal being trained	0.01	-0.35	-0.16	-0.05	-0.13	-0.06	-0.21	0.04	0.24
It is appropriate to allow herding dogs to bite livestock to get them to move	0.15	0.34	0.33	0.17	0.11	-0.07	-0.03	0.34	-0.11
It is appropriate to use a shock collar to ensure that a dog doesn't leave the property	0.10	0.04	0.76	0.01	-0.01	0.12	0.07	-0.06	0.12
It is appropriate to use shock fences to ensure that livestock doesn't leave the property	0.18	0.08	0.74	-0.02	0.13	-0.01	0.04	0.19	0.02

Table 2. ...continued

	Component								
	1	2	3	4	5	6	7	8	9
It is appropriate to use a shock fence to ensure that zoo animals don't leave the pen	0.17	-0.02	0.72	0.02	0.15	0.04	0.13	0.20	-0.04
It is NOT appropriate to use a shock collar to ensure that a circus animal doesn't leave its pen	-0.26	-0.10	-0.63	0.04	0.01	-0.01	-0.11	-0.09	-0.04
A circus animal is trying to make its trainer upset when it goes to the bathroom where it shouldn't (ex. In the performance ring)	0.16	0.16	0.00	0.81	0.04	0.10	0.03	-0.09	0.02
A circus animal is trying to make its trainer upset when it goes to the bathroom when it shouldn't (ex. During a performance)	0.12	0.23	-0.04	0.81	0.07	0.07	0.01	-0.04	0.02
A dog is trying to make its owner upset when it goes to the bathroom in the house	0.06	-0.03	0.04	0.80	0.01	0.11	0.03	0.00	0.05
Animals at the zoo are trying to upset the keepers by excessively relieving themselves	0.09	0.37	0.01	0.66	0.10	0.07	0.04	-0.08	0.00
It is appropriate to shout at zoo animals if they do not appear to be listening or complying with commands	0.18	0.07	0.04	0.09	0.80	0.08	0.17	-0.01	0.07
It is appropriate to shout at livestock if it does not appear to be listening or complying with commands	0.16	0.05	0.19	0.08	0.78	-0.01	-0.01	0.12	0.15
It is appropriate to shout at a dog if it does not appear to be listening or complying with the trainer	0.25	0.04	-0.04	0.04	0.73	-0.11	0.02	-0.02	0.13
It is NOT appropriate to shout at a performance animal if it does not appear to be listening or complying with the trainer	-0.21	0.10	-0.13	0.02	-0.62	-0.09	0.01	-0.04	-0.15
A dog should NOT be allowed to live in a house, only in the back yard	0.07	0.17	-0.03	0.13	-0.06	0.73	0.04	0.02	0.01
It is appropriate to train a dog to fight other dogs	0.11	0.22	0.04	0.09	0.07	0.65	0.05	-0.14	-0.05
It is appropriate to shoot a dog if it is no longer healthy	0.21	0.17	0.16	0.01	0.07	0.63	-0.03	0.16	0.06
It is appropriate to hit a dog with a metal pipe when it does not listen to the owner	0.00	0.12	0.09	0.18	-0.01	0.59	0.00	-0.01	-0.05
It is appropriate to remove an animal from its natural habitat for display in a zoo	0.20	0.11	0.04	0.07	0.06	0.15	0.69	0.20	0.13
It is appropriate for animals to be on display for educational purposes	-0.02	-0.07	0.21	0.00	0.12	-0.11	0.66	0.10	-0.01
It is NOT appropriate for animals to be on display for entertainment purposes	-0.18	-0.06	0.01	-0.03	0.03	-0.18	-0.64	-0.16	-0.13
Most zoos do a good job of re-creating an animal's natural habitat	-0.04	0.03	0.24	-0.02	0.06	-0.23	0.58	-0.23	-0.07
It is NOT appropriate to breed livestock on small farms for food	-0.08	-0.01	-0.09	0.12	-0.02	0.03	-0.09	-0.75	0.08
It is appropriate to breed and slaughter animals to be used for food	0.03	-0.03	0.21	-0.13	0.09	0.04	0.12	0.73	-0.07

Table 2. ...continued

	Component								
	1	2	3	4	5	6	7	8	9
It is appropriate to put a dog in "time out" if a training session is not going well or the animal is not cooperating	-0.00	0.05	-0.01	0.08	0.19	-0.03	0.08	-0.10	0.82
It is appropriate to put an animal in "time out" if a training session is not going well or the animal is not cooperating	0.07	0.01	0.11	0.01	0.36	0.06	0.08	-0.04	0.74
If you neuter a dog too early, he will end up wimpy and weak	0.11	0.00	0.03	0.08	0.08	0.17	-0.04	-0.06	-0.03
Small dogs do not need to walk on a leash because you can carry them everywhere	0.14	0.06	0.01	0.12	-0.04	0.11	0.08	-0.03	0.05
Large breed dogs need more training than small breed dogs	0.13	0.20	-0.09	0.02	0.05	0.09	0.14	-0.07	0.08
A dog should be punished when it goes to the bathroom in the house	0.23	-0.04	0.12	0.07	0.12	-0.15	0.04	0.04	0.09
Livestock should never be allowed in a house, only in the yard	-0.06	-0.09	0.20	0.08	-0.01	0.00	0.08	0.47	0.10
It is NOT appropriate to withhold a meal from a dog if it does not comply with the trainer	-0.02	-0.26	-0.16	-0.05	0.00	-0.15	0.02	0.04	-0.04
It is NOT appropriate to use social dominance in training circus animals (i.e., achieving psychological "dominance" over animals)	-0.02	-0.02	-0.05	0.00	-0.08	-0.06	-0.04	-0.08	-0.02
The use of dominance rolling is appropriate when training a dog	0.06	-0.08	0.19	0.07	0.03	-0.09	0.06	-0.01	0.06
It is NOT appropriate to use a choke collar while walking a dog	-0.09	0.00	-0.17	-0.04	-0.08	-0.01	-0.04	-0.05	-0.04
It is appropriate to crate train a dog	-0.01	-0.08	0.13	-0.02	-0.15	-0.16	0.02	0.04	0.32
It is appropriate to put large animals (like elephants) in small pens because they can adapt to the space they are put in	0.14	0.26	-0.19	0.18	0.00	0.30	0.32	-0.05	0.07
It is NOT necessary for a person to eat meat to maintain a balanced diet	0.02	-0.03	-0.10	-0.01	-0.07	0.02	-0.10	-0.17	0.06
If a dog uses the bathroom in the house it is appropriate to rub its nose in the excrement	0.25	0.12	0.09	0.13	0.08	0.24	-0.02	-0.13	0.06
It is appropriate to spray a dog with water to stop him from excessive barking	0.19	-0.04	0.07	0.12	-0.05	-0.07	-0.06	0.23	0.23
Typically, livestock is slaughtered in a humane way	-0.05	0.11	0.09	0.04	0.22	0.11	0.29	0.11	-0.22

Table 3. Significant predictors of the nine factor scores.

Factor Score: Label	Significant Predictors of Endorsement	Explained Variance	F	p
1: General Punishment	Male Higher education level Lower perceived control No obedience school training	13%	$F_{(4,422)} = 15.17$	< 0.001
2: Withholding Food and/or Whipping	Male Lower perceived control Does not own a dog	12%	$F_{(3,423)} = 19.80$	< 0.001
3: Electric Shock Use	Male Caucasian/White Higher education level Lower perceived control	9%	$F_{(4,422)} = 10.22$	< 0.001
4: Intentional Upsetting	Owns a dog	1%	$F_{(1,425)} = 4.51$	0.034
5: Shouting at Animals	Male Lives in more urban area Lower perceived control	5%	$F_{(3,423)} = 7.11$	< 0.001
6: View Dogs as "Property"	Male Owns a dog Higher education level Not Caucasian/White	20%	$F_{(4,422)} = 25.76$	< 0.001
7: Displaying Zoo Animals	Married, cohabitating, or in a long-term dating relationship Not Caucasian/White	2%	$F_{(2,424)} = 4.60$	0.011
8: Livestock Treatment	Lives in more urban area Lower perceived control	2%	$F_{(2,423)} = 5.21$	0.006
9: "Timeout" Use	Has obedience school training	1%	$F_{(1,425)} = 4.45$	0.035

Regression Analyses

Stepwise multiple regression analyses were used to examine 11 potential predictors of endorsing the various types of animal punishment captured by the nine factor scores. The 11 potential predictors were: age, race, marital status, education level, cat ownership, dog ownership, obedience school training, whether participants had ever lived on a farm, the type of area the participants spent the bulk of their lives in, and LPC index. Table 3 lists the nine factor scores along with the significant predictors of each factor score, the total percentage of variance accounted for by each model, the F values for the models, and the associated *p* values. Table 4 summarizes the statistics for the significant predictors of each factor score including the beta weights, incremental changes in R^2 , and the corresponding *F* and *p* values. As can be seen by examining Table 4, lower perceived control was a significant predictor of general punishment (Factor 1 scores), withholding food and/or whipping (Factor 2 scores), electric shock use (Factor 3 scores), shouting at animals (Factor 5 scores), and livestock treatment (Factor 8 scores).

Table 4. Stepwise regression analyses for factors 1 to 9.

Predictors	β	Partial R^2	Model R^2	F	p
Factor 1 (General Punishment)					
Gender	-0.28	0.08	0.08	36.45	< 0.001
Education Level	0.15	0.02	0.10	9.42	0.002
LPC Index	-0.13	0.02	0.12	8.42	0.004
Obedience School	0.10	0.01	0.13	4.41	0.036
Factor 2 (Withholding Food and/or Whipping)					
Gender	-0.31	0.10	0.10	48.92	< 0.001
LPC Index	-0.11	0.01	0.11	5.27	0.022
Dog Ownership	0.09	0.01	0.12	4.29	0.039
Factor 3 (Electric Shock Use)					
Gender	-0.22	0.04	0.04	18.25	< 0.001
Race	0.15	0.02	0.06	7.47	0.007
Education Level	0.14	0.02	0.08	7.67	0.006
LPC Index	-0.12	0.01	0.09	6.35	0.012
Factor 4 (Intentional Upsetting)					
Dog Ownership	0.10	0.01	0.01	4.51	0.034
Factor 5 (Shouting at Animals)					
Gender	-0.11	0.02	0.02	7.74	0.006
Type of Area Lived In	0.13	0.01	0.03	6.29	0.013
LPC Index	-0.13	0.02	0.05	7.01	0.008
Factor 6 (Viewing Dogs as "Property")					
Gender	-0.35	0.12	0.12	55.04	< 0.001
Dog Ownership	0.22	0.05	0.16	41.71	< 0.001
Education Level	0.15	0.02	0.19	32.67	< 0.001
Race	-0.09	0.01	0.20	25.76	< 0.001
Factor 7 (Displaying Zoo Animals)					
Marital Status	0.10	0.01	0.01	4.88	0.028
Race	-0.10	0.01	0.02	4.60	0.011
Factor 8 (Livestock Treatment)					
Type of Area Lived In	0.12	0.01	0.01	5.12	0.024
LPC Index	-0.11	0.01	0.02	5.26	0.022
Factor 9 ("Timeout" Use)					
Obedience School Training	0.10	0.01	0.02	4.45	0.035

Note: Only variables making a significant contribution to the explained variance are included in the table. Partial R^2 refers to the change in R^2 that results from including each variable. Model R^2 refers to the accumulated variance explained by the model (including all predictors that have been entered up until then). F (and the associated p) refers to the significance of the contribution of each specific variable.

Discussion

The results will be discussed from three perspectives: 1) the notion that attitudes toward animal training can be broken down into distinct categories, 2) that these attitudes reflect a belief that animals should not be treated badly, and 3) attitudes toward animal training can be predicted by one's perceived control over caregiving situations. The analysis of the attitudes toward animal training questionnaire yielded nine distinct factors. Four of these factors appeared to represent attitudes toward specific training techniques (withholding food, whipping,

electrical shock, shouting, and time-out). Three factors were centered on characteristics of specific types of animals (circus animal/livestock, dogs, or zoo animals). Additionally, separate factors represented characteristics of the participants themselves (viewing dogs as property and belief that animals intend to upset their owners). This factor structure demonstrates that attitudes toward animal training are multi-faceted and should be measured specifically for different types of animals, different forms of punishment, and different views of animal intentions. Further research will be needed to examine whether this factor structure holds when investigating other animals (e.g., cats or wild animals) or forms of training that are more positive (e.g., providing treats for an animal). Also, there may be other individual differences that reflect attitudes toward animal training (e.g., beliefs about animal cruelty).

Second, the data demonstrated that college students do not endorse forms of training that they believe will harm animals. For all nine factors, participants did not endorse various forms of punishment. This finding is consistent with other research demonstrating that such participants endorse strong punishments for those committing acts of cruelty against animals (Sims, Chin and Yordon 2007). Young adults do not support many of the negative animal training practices that are also condemned by respected animal organizations such as the Association of Zoos and Aquariums. This finding suggests that such organizations could tap this population for support of legislation aimed at preventing animal cruelty during animal training.

Finally, this study demonstrated that perceived control over caregiving can be used as a predictor of attitudes toward animal training. Furthermore, perceived control status predicts variance in attitudes toward animal training beyond gender, race, education level, and training experience (factors that have been previously related to attitudes toward animals). Specifically, those who perceive themselves as powerless relative to a child are also those who endorse more harsh forms of punishment for an animal. Previous research has found gender to be a reliable predictor of attitudes toward the treatment of animals in research (Eldridge and Gluck 1996) and animal rights (Kruse 1999), but attitudes specifically related to animal training have not been investigated. Similarly, a recent study by Coleman et al. (2003) found that belief in perceived control over pigs is related to greater use of an electric prod, but related perceived control to animal training in general has not been established.

Overall, the data from the present study support a model of caregiving in which animals can elicit the same power schemas as young children, and also are in line with psychological arguments (DeViney, Dickert and Lockwood 1983; Baenninger 1991; Ascione 1993; Boat 1995; Ascione, Thompson and Black 1997) proposing that those who engage in abusive and/or coercive behaviors toward animals are the same individuals who also are at risk to harm other humans. This may be because the abusers perceive the victim as deserving of the abuse due to some perceived trait of the victim. Felthous and Kellert (1987) found that self-reported abusers engaged in abuse toward animals due to a belief that the animal had wronged them. The perceived control of the victim, in this case an animal, and lack of perceived control by the attacker, may be a key to discovering the causes of punishment and abuse.

On a practical side, these results suggest that an important part of animal training is the trainer's belief about his or her control over the situation. *Believing* that one is in control may be a more important issue than actually *being* in control. Paradoxically, belief that one is not in control may cause an individual to be more likely to endorse harsh training. Those who teach obedience classes or who help mend human–animal relations gone awry should be aware that interventions should consider the human's beliefs about control, in addition to teaching control techniques.

Similarly, mental health care professionals should be aware of the effects of low perceived control on children and animals and exposure to past animal abuse when assessing individuals. According to a survey by Flynn (2001), approximately half of college undergraduates reported some exposure to animal cruelty, with one in five perpetrating the abuse. This statistic is particularly frightening considering that there are nearly 38 million households with dogs and 34 million with cats, not to mention the many other types of animals kept as pets (AVMA 2002). Family professionals should recognize early signs of low perceived control and how that may translate into beliefs about possible actions toward animals.

Although this work demonstrates that perceived control status is related to endorsements of punishments, we did not specifically test whether those low in perceived control would actually carry out these punishments. In this sense, the current study is only exploratory. Future research is needed to investigate whether perceived control status can be used to predict actual training behaviors. Such work could examine owners and their pets as they progress through obedience courses, or could look at punishments given during simulations of training situations. The experimenters also plan to examine the relationship between anthropomorphism, or the attribution of human characteristics to non-human entities, and animal training practices. The findings obtained in the present study suggest that perceived control could be a key variable in future studies examining the similarities between human–animal interactions and human–human interactions.

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