



## Review

## Barriers to the adoption of humane dog training methods



Zazie Todd\*

Companion Animal Psychology, Maple Ridge, British Columbia, Canada

## ARTICLE INFO

## Article history:

Received 13 September 2017

Received in revised form

24 February 2018

Accepted 7 March 2018

Available online 14 March 2018

## Keywords:

dog training  
 positive reinforcement  
 attitudes  
 skills  
 animal welfare

## ABSTRACT

The use of aversive dog training methods is associated with risks to animal welfare, yet most dog owners continue to use positive punishment and negative reinforcement at least some of the time. This study reviews the barriers to the adoption of humane dog training methods by the general public. Lack of knowledge of the welfare risks, the poor quality of much information available to dog owners (should they seek it out), lack of regulation of dog trainers, and theoretical and practical knowledge of dog training will all affect people's choice of method. The differing positions of animal behavior and veterinary organizations and dog trainers may contribute to the idea that there is a lack of consensus on appropriate methods. The reasoned action approach, which is one of the most extensively tested models in health promotion and psychology, is a promising way of understanding people's intentions and likelihood of using humane dog training methods. Suggestions for future research include developing an understanding of how perceived social norms link to dog training behavior and the best ways to teach humane dog training methods.

© 2018 Elsevier Inc. All rights reserved.

## Introduction

Despite many studies recommending the use of reward-based training methods for pet dogs, including a recent review (Ziv, 2017), many owners continue to use positive punishment and negative reinforcement. Behavior problems are the leading cause of death of dogs under 3 years old (American Veterinary Society for Animal Behavior [AVSAB], 2008a), and an owner's perception of a dog as being "well-behaved" is correlated with the dog's lifespan (Dreschel, 2010). Therefore, research into how best to increase dog owners' and trainers' use of appropriate methods is urgently needed. The continued use of training methods that carry risks (such as fear and aggression) and that may negatively affect the relationship between dog and owner may be one cause of canine behavior problems and certainly is not the best way to resolve them. However, some people (including some dog trainers and celebrities) have negative attitudes toward humane training methods and continue to use and promote aversive techniques. Increasing the adoption of humane training methods involves not just teaching people how to use them

but also changing attitudes toward dog training so that people are willing to learn and use reward-based methods. This study is an overview of the barriers to the adoption of humane dog training methods, summarizes the challenges in promoting humane methods, and suggests future directions for research.

For the purposes of this review, humane training refers to the use of positive reinforcement and negative punishment in training, along with management strategies that are not aversive. This is also known as reward-based training and is the same approach taken by a number of professional bodies (but not all; see below). Humane management strategies include but are not limited to the use of no-pull harnesses, putting lids on garbage cans, use of pet gates to keep dogs separate from children or other animals, and the use of a muzzle with appropriate prior conditioning using only nonpunitive, nonscary techniques.

The definition of reward-based methods based on positive reinforcement and negative punishment, and aversive methods based on positive punishment and negative reinforcement, is fairly standard (e.g., Greenebaum, 2010), and many studies of dog training separate the methods used along these lines (Casey et al., 2014; Arhant et al., 2010). However, there are minor variations in how methods have been classified in the literature. These differences may reflect the difficulties of classifying language used by ordinary people to describe the methods they use, a focus on positive reinforcement versus positive punishment with less attention paid to

\* Address for reprint requests and correspondence: Zazie Todd, PhD, Companion Animal Psychology, PO Box 719 Stn Whonnock, Maple Ridge, British Columbia V2W 0C9, Canada. Tel: +1-604-406-3377.

E-mail address: [companimalpsych@gmail.com](mailto:companimalpsych@gmail.com).

URL: <https://www.companionanimalpsychology.com>

negative reinforcement and negative punishment, and/or the use of statistical techniques rather than theory for analytic purposes. Outside the scientific literature, popular dog training books do not always include clear definitions (Browne et al., 2017) and the general public typically does not study learning theory. Hence, although the words “humane” and “reward-based” are widely used to describe dog training methods, they are not always well defined.

The literature on dog training methods is relatively small compared to that on parenting strategies. Research shows a strong link between corporal punishment of children and the risks of negative outcomes such as behavior problems (Durrant and Ensom, 2012), and there is a growing body of literature on the best ways to teach evidence-based parenting strategies. Attitudes toward corporal punishment of children are known to predict the use of corporal punishment (Taylor et al., 2011), so it seems reasonable to assume that attitudes toward the use of aversive techniques in dog training also predict the use of such techniques. Therefore, where appropriate, the study will also draw on the literature on evidence-based parenting programs and on corporal punishment of children.

Humane training methods are an important aspect of animal welfare for pet dogs. Since the 1960s, animal welfare has been framed in terms of the Five Freedoms. These freedoms include the freedom from fear and distress and the freedom to express normal behaviors. The more recent development of the Five Domains model also includes opportunities to experience positive welfare (Mellor, 2016). These approaches to animal welfare are relevant to discussions of dog training in several ways: aversive techniques have the potential to cause fear and/or stress (Ziv, 2017); behavior problems in and of themselves may be due to fear and stress which aversive methods do not resolve; and some behavior problems may be due to lack of an allowed outlet for normal behavior. For example, fear of strangers or fear of body handling may cause a dog to hide or be aggressive, while chewing problem and digging behaviors may be due to lack of permissible outlets for these behaviors, such as a failure to provide chew toys. Training using positive reinforcement is linked to increased play behaviors (Rooney and Cowan, 2011). There is evidence that dogs like to work to earn a reward—dubbed the “Eureka effect” (McGowan et al., 2014). This means positive reinforcement training may contribute to positive welfare as an enrichment activity for dogs, while aversive techniques are associated with risks to welfare.

### Dog training methods and animal welfare

The proportion of people using only reward-based dog training methods is not known, but according to surveys in the UK, it varies from 16% (Blackwell et al., 2008) to 20% (Hiby et al., 2004), but all participants in Rooney and Cowan (2011) used a combination of rewards and punishment. In Arhant et al.'s (2010) study of Viennese dog owners, although 90% used rewards often or very often, 80% also used positive punishment (typically leash jerks, scolding, or holding the dog's muzzle). Many dog owners scold their dog if it does not cooperate with treatment at the vet (Mariti et al., 2017). The use of aversive dog training methods by dog owners, at least some of the time, therefore seems to be widespread.

Numerous studies show negative effects from the use of aversive training techniques such as an increase in aggression, stress, and/or increased behavior problems (Arhant et al., 2010; Blackwell et al., 2008; Casey et al., 2014; Cooper et al., 2014; Herron et al., 2009; Hiby et al., 2004), and in reduced gaze toward the owner (Deldalle and Gaunet, 2014), which may have implications for the human-animal bond and future training. Shock collars are associated with poorer training outcomes for working dogs and pets (Arnott et al., 2014; Blackwell et al., 2012) and with signs of stress, including associating the shock with the trainer (Schilder and van der Borg,

2004). A review of the literature (Ziv, 2017) concludes that not only do aversive techniques have unwanted consequences in the form of fear and aggression, but also they may even be less effective than are positive techniques in teaching desired behaviors. On the other hand, appropriate behavioral treatment for dogs with behavior problems reduces the risk of rehoming and euthanasia (Siracusa et al., 2017).

Dog owners' beliefs and attitudes about dog training methods may be affected by the legal situation, awareness of the positions of professional bodies, the methods used or recommended by dog trainers, family and friends, and the methods promoted or seen being used on TV, social media, and the Internet.

There may also be some confusion over what constitutes humane methods. Many dog owners are still influenced by the idea of dominance in training based on beliefs about dogs being similar to wolves. Unfortunately, this approach frames the dog-owner relationship in antagonistic terms, suggesting that dogs should obey people out of respect and that the owner needs to be “dominant” (Todd, 2015). This approach leads to misunderstandings of canine behavior and directly encourages people to use confrontational methods, such as “alpha rolls” (rolling the dog on its side and pinning it there).

### Dog trainers, terminology, and lack of regulation

Several different terms are used by dog trainers to describe humane training methods, including humane training itself, force-free training, positive reinforcement training, and reward-based training. Some dog training schools, such as the Academy for Dog Trainers and the Karen Pryor Academy, include a commitment to humane dog training methods. Because dog training is not regulated, some trainers may use terms such as “humane” and “force free” in ways that are incompatible with standard definitions (e.g., to refer to electronic collars or alongside a clear statement that treats are not used without specifying techniques). It is likely some, at least, of the trainers who do not specify use on their web sites are using electronic collars. Prevalence is unknown. Given the lack of transparency for consumers and the potential risks of harm to dogs, more research on the techniques used and advertised by trainers on their web sites is needed.

There are also disagreements among dog trainers who use terms such as “positive reinforcement” to refer to humane dog training methods. Most of this disagreement focuses on the use of negative punishment, including “time-out” and the use of a “no-reward” marker (e.g., saying “Too bad!” when the dog does a different behavior than the one asked). In practice, positive reinforcement and negative punishment are combined since rewards will be withheld when the dog does not do the behavior requested. Withholding rewards can be a form of negative punishment (Mills, 2005). Because behavior cannot be guaranteed, dogs will perform incorrect behavior at least some of the time. As well, what is punishing or reinforcing may depend on the dog, for example, if a fearful dog is afraid of the sound from a clicker, it will be punishing.

The use of “time-out” is included in *The American Academy of Pediatrics* (1998) guidelines on effective punishment for children. “Time-out” can be an effective way to increase compliance in children (Kaminski et al., 2008; Owen et al., 2012) and is considered a nonaversive discipline technique (McGilloway et al., 2012; Morawska and Sanders, 2011). Teaching parents how to effectively implement “time-out” (along with other parenting strategies) is part of evidence-based parenting programs such as Triple P (Sanders, 2008), and for children with disruptive behavior or developmental delay (Eyberg et al., 2008; Garland et al., 2008; Ros et al., 2016). “Time-out” is based on the removal of access to reinforcers and, for children, involves sending them temporarily to a quiet room; with a dog, “time-out” may involve the dog being put in another room or a

crate (e.g., 30 seconds to 2 minutes), or the owner leaving the room temporarily (which may be easier to implement). Unless there is an imminent safety risk, a single warning cue is given first which means the “time-out” can be avoided if the behavior ceases. To be effective, “time-out” is applied immediately if the behavior continues after the warning cue and consistently every time the behavior occurs (Drayton et al., 2014). Situations where “time-out” may be appropriate include puppies biting too hard, dogs jumping and mouthing, and inappropriate play behavior. “Time-out” is used with positive reinforcement for appropriate behavior and added exercise and enrichment as needed. There are occasions when “time-out” could be a welfare risk, such as for a dog with separation anxiety that cannot be left alone or when the underlying problem is fear or anxiety that “time-out” does nothing to resolve. A survey of online guidance on “time-out” for parents found all of it was lacking (Drayton et al., 2014) and it seems likely that similar guidance for dog owners also lacks details and accuracy. Eighty-five percent of parents who use “time-out” do so in a way that is not in line with an evidence-based approach (Riley et al., 2017). Mistakes that would likely generalize to dog owners are repeated use of warning cues and failure to use it alongside positive reinforcement for appropriate behavior. Existing research does not assess how “time-out” is used in dog training, whether it is used effectively, or when it would be contraindicated. However, the effectiveness and welfare risks of different implementations have been discussed (Overall, 2013).

Reward-based dog trainers also differ in whether they use no-reward markers, which signal to the dog they have picked the wrong behavior rather than the one that was requested and so missed out on earning a reward. A no-reward marker is typically a phrase such as “too bad,” “oops,” or “try again.” For unimpaired humans, errorful learning in which feedback is given on mistakes is beneficial for learning and leads to better memory than errorless learning in which all mistakes are avoided (Kornell and Vaughn, 2016; Metcalfe, 2017). More research is needed both on no-reward markers for dogs and on dog trainers’ understanding and beliefs about them. It is important that dog training research reflects methods as used by trainers because differences between laboratory and everyday use may cause differences in results, as has been shown for the use of the clicker (Feng et al., 2017).

Membership of dog training organizations is optional, and in most countries, there is no regulation of or required education for dog trainers. Dog trainers can opt for professional accreditation, as with the Certified Professional Dog Trainer, Knowledge Assessed assessments by the Certification Council for Professional Dog Trainers or Professional Canine Trainer (Accredited) from the Pet Professional Accreditation Board, but there is little evidence that the general public knows what to look for in a dog trainer. There is also no regulation of the terms behavior consultant or behavior counselor, although veterinary behaviorists are certified by the American College of Veterinary Behaviorists, Certified Applied Animal Behaviorists by the Animal Behavior Society, and Animal Behavior Consultants certified by the International Association of Animal Behavior Consultants. In the UK, there are moves to regulate dog trainers (ABTC, 2014; McBride and Montgomery, 2018), and the Association for the Study of Animal Behavior has a certification scheme for clinical animal behaviorists.

There is no one body that is working to promote the use of humane dog training methods. In addition, disagreements over methods may give the erroneous impression that there is no scientific consensus.

## The legal situation

The legality or otherwise of some dog training tools may also affect people’s beliefs and perceived norms. Austria, Germany, Denmark,

Norway, Slovenia, Sweden, Switzerland, Quebec, Wales, and Scotland outlaw electronic shock collars and electronic barrier fences. In locations where such tools are legal, it can be assumed this will contribute to normative beliefs that these methods are acceptable.

When Sweden banned corporal punishment for children in 1979, while 53% of people supported it in 1965, 11% supported it in 1994 (Durrant, 1999). Best effects occur when changes to the law are accompanied by educational campaigns (as happened in Sweden). Parenting programs that teach appropriate methods and provide support can reduce the use of punishment and lead to reductions in child maltreatment (see Durrant and Ensom, 2012, for a review). Future legal changes to the status of dog training tools should, accordingly, be accompanied by public education campaigns.

## Positions of professional bodies

Some professional organizations forbid their members to use aversives in training, while others allow members to use aversive techniques or to use them in certain circumstances. There are also variations in how this information is presented to the public, who might be using their web site to find a dog trainer.

Those that ban members from using aversive methods include Association of Pet Dog Trainers (APDT) UK and the Pet Professional Guild. The APDT UK’s mission statement (APDT UK 2017) lists as one of its core values “The rejection of invasive, coercive, or punitive equipment or methods, which can cause mental and physical trauma to dogs.” The Pet Professional Guild (“the Association for force-free pet professionals”) lists the following as nonnegotiables: “no shock, no pain, no choke, no fear, no physical force, no physical molding, no compulsion-based methods are used to train or care for a pet” (Stapleton-Frappell, 2015).

The American Veterinary Society for Animal Behavior has several position statements for the public, including one on the use of punishment (AVSAB, 2007) and one on the use of dominance theory in behavior modification of animals (AVSAB, 2008b). The former includes scientific definitions, suggestions for further reading, and a list of 9 potential adverse effects from the use of punishment. The latter includes advice for veterinarians in its key points, including “The American Veterinary Society for Animal Behavior recommends that veterinarians identify and refer clients only to trainers and behavior consultants who understand the principles of learning theory and who focus on reinforcing desirable behaviors and removing the reinforcement for undesirable behaviors” (p.1).

The European Society of Veterinary Clinical Ethology (ESCVE) has a position statement on the use of electronic collars (ESCVE, 2017), which urges all European countries to take a position on remote-controlled collars, electronic boundary fences, and bark collars. The statement also calls for education: “ESCVE encourages education programs that use positive reinforcement methods (while avoiding positive punishment and negative reinforcement) thereby promoting positive dog welfare and a humane, ethical, and moral approach to dog training at all times” (p.3). A review of the research behind this position statement can be found in Masson et al. (2018).

The International Association of Animal Behavior Consultants (IAABC) and APDT adopt the least intrusive, minimally aversive (LIMA) approach (APDT, 2017; IAABC, n.d.). LIMA aims to help trainers choose the most humane method by providing a hierarchy of techniques (Friedman, 2009). LIMA includes negative punishment (such as “time-out”) in the same category as negative reinforcement and extinction, as methods to be used only when others (including positive reinforcement) have not worked; however, see earlier comments on negative punishment. Positive punishment is last in the hierarchy. The IAABC position statement says “Punishment should never be the first line of treatment in an intervention, nor should it make up the majority of a behavior modification program.

Furthermore, it should be discontinued as quickly as possible once the desired behavior change has taken place.” Both IAABC and APDT refer to the need for trainers to ensure competence. Competence plays a role in decisions on techniques; for example, the timing of rewards and ability to get the dog’s attention are linked to greater success in dog training (Payne et al., 2017). A concern is that people who are not technically skilled may feel that positive reinforcement has not worked and turned to aversive methods rather than refer. It is not known how trainers make decisions about this.

Rescues and shelters also adopt a range of positions. Some, such as the British Columbia Society for the Prevention of Cruelty to Animals in Canada (BCSPCA, 2016) and Dogs Trust (Dogs Trust, n.d.) in the UK, have a position statement or information on their web site that supports the use of humane training methods. However, many organizations do not have such statements, and the true prevalence of the use of aversive methods is not known.

The public’s exposure to and beliefs about the training of working dogs, such as guide dogs, search-and-rescue dogs, drug detection, police and military dogs, may also influence their attitudes toward dog training. Although most working dogs are now trained using reward-based methods (Rooney et al., 2016), organizations and individuals that train working dogs may also vary in their training methods. For example, Haverbeke et al., (2008) report the frequent use of aversive training methods by military dog handlers. By contrast, most trainers of search-and-rescue dogs prefer to use positive reinforcement (Alexander et al 2011). The use of aversive training methods for working dogs may cause fear, anxiety, reduced confidence, and behavior problems (Rooney et al., 2009) just as for pet dogs, and best practices in training methods and equipment choices may lead to better welfare and performance (Cobb et al., 2015; Rooney et al., 2016).

Differences in positions may give the public the impression that there is no agreement on the best methods to train a dog. Statements that aversive methods can be used as a “last resort” may be perceived as providing support for using aversive methods because it gives the mistaken impression that there are some circumstances in which they are the only option. Consistent messaging, and research on the best ways to get that message across, would be welcome.

### The role of veterinarians

Veterinarians play an important role in teaching people about animal behavior and referring people to dog trainers and behaviorists, although they sometimes miss opportunities to discuss behavior with clients (Roshier and McBride, 2012). Many American Veterinary Medical Association Council on Education–accredited veterinary schools do not offer a formal course in animal behavior (Shivley et al., 2016). Better education on behavior will enable vets to better guide their clients toward appropriate dog trainers. The 2015 American Animal Hospital Association Canine and Feline Behavior Management Guidelines (Hammerle et al., 2015) include guidelines on finding a qualified trainer. The guidelines state trainers should have certification and only use positive methods; they also give specific advice to check with a trainer that they do not use shock collars, leash jerks, “dominance,” etc. The Fear Free movement (Becker, 2014) in veterinary medicine is also a positive step because the course teaches veterinarians to recognize signs of fear, anxiety, and stress and about the importance of working with qualified reward-based dog trainers. For veterinarians, working with a reward-based dog trainer may sometimes be needed to ensure low-stress visits to the vet for dogs (Lloyd, 2017).

In Canada, although the Canadian Veterinary Medical Association’s guidelines (CVMA, 2015) are generally in support of humane training methods, aversive techniques are “strongly discouraged” but still allowed as a last resort (“Devices such as electronic collars should only be used by a certified and/or experienced trainer or

behaviorist, and only after all other training and/or behavior modification methods have failed”).

Given these guidelines, people who ask their veterinarian for a recommendation for a dog trainer may in some cases be referred to someone who does not use modern, humane techniques. The problem is compounded by the fact veterinarians do not receive much training in animal behavior.

### Dog owners’ knowledge, skills, and techniques

People’s control over their behavior is linked to perceived control and also to their skills. In the case of dog training, people’s skills in terms of timing of rewards, body position, and getting the dog’s attention have been linked to success in teaching the dog “lie down” (Payne et al., 2017). For example, people may intend to use food rewards to teach a dog a particular command, but if their timing is not good enough, they may positively reinforce a different behavior (such as standing up).

People’s decision to use rewards, especially the use of food, may also affect their success in dog training because food is a more effective reward than petting or praise (Okamoto et al., 2009; Feuerbacher and Wynne, 2012; Fukuzawa and Hayashi., 2013) and praise is not meaningful to dogs unless it has already been conditioned (Feuerbacher and Wynne, 2015). Knowledge, or lack of it, may also affect choice of dog training techniques. Among trainers of working dogs, The Australian Working Dog Alliance (Branson et al., 2009) found those with lower levels of education were more likely to use correction and electronic shock collars, whereas use of positive reinforcement was more common in those with education.

Many people get information about dog training from themselves. Pirrone et al. (2015) in Italy found 55% of respondents said they got dog training information from “myself” (of which 13% got information “instinctively” and 42% from the Web, TV, or a book). Similarly, a study of dogs with behavior problems in the US (Herron et al., 2009) also found people rated the “self” highly as a source of information for particular techniques. In this study, common advice from trainers included choke and prong collars, forcing the dog down with a leash, teaching “look” and “watch me,” and use of a clicker. Unfortunately, if dog owners decide to consult a book, some of the most popular—and enduring—dog training books include erroneous information (Browne et al., 2017). Another issue is people’s ability to read canine body language. While most people know a happy dog when they see one, experience is a factor in recognizing fear in dogs (Wan et al., 2012). Many dog owners miss signs that their dog is afraid of loud noises (Blackwell et al., 2013) or afraid at the vet (Mariti et al., 2015). If people do not recognize signs of stress, anxiety, and fear, they will not realize when the methods they are using are affecting their dog’s welfare.

Dog owner’s personality and other characteristics may also affect choice of dog training methods. Among working dog handlers, those scoring high on agreeableness use lower rates of verbal corrections, and those scoring high on conscientiousness have a better understanding of training (Payne et al., 2015). Among parents, 3 aspects of parenting style (responsiveness, behavioral control, and autonomy support) have been linked to the parent’s personality traits, albeit with small effect sizes (Prinz et al., 2009). Future research could investigate the relationship between personality characteristics of dog trainers and owners and their propensity to choose particular methods.

### Toward an understanding of dog owners’ attitudes and use of dog training methods

One way to understand the way attitudes and beliefs affect behavior when it comes to the use of dog training methods is

through the reasoned action approach (Fishbein & Ajzen, 2010). The reasoned action approach and the earlier theory of planned behavior have been widely used in social psychology and health promotion to explain and predict behavior change in areas such as physical activity, diet, and safer sex (Armitage and Conner, 2001; Webb et al., 2010; McEachan et al., 2011; McEachan et al., 2016). It is a very useful approach: in a large meta-analysis, the theory of planned behavior predicted 19% of the variance in behavior and 44% of the variance in intentions (McEachan et al., 2011). The successful use of this approach to predict parental use of corporal punishment on children (Taylor et al., 2011) suggests it will be a particularly good fit for research and interventions on dog training methods.

An illustration of how the reasoned action approach could be used to understand people's intentions to use and actual behaviors of using humane dog training methods is shown in Figure. The model provides a way of understanding the wide range of factors that may affect people's use (or not) of humane dog training methods. People's perceptions of social norms may be influenced by a range of factors, including articles on the Internet, TV programs, popular books, and the beliefs of their friends and family. Knowledge of dog training involves both theoretical knowledge (learning theory, etc.) and practical aspects such as speed of reinforcement, so actual abilities as well as confidence in those abilities will influence dog training behavior. The reasoned action approach includes 2 aspects of attitudes, instrumental (e.g., "humane dog training methods are effective") and experiential (e.g., "humane dog training methods are fun to use").

This approach can be used to design and test promotions of humane training methods. For example, because confidence in abilities is one of the moderating variables, promotions designed to increase people's confidence in using reward-based methods are likely to lead to increased actual use of such methods. Conversely, approaches based on leadership, which the public may see as related to dominance, may be perceived as criticisms of people's abilities and in turn may reduce confidence in using reward-based methods. The reasoned action approach also suggests that promoting the idea of a consensus on dog training methods will lead to

changes in perceptions of social norms that in turn will lead to improved intentions to use humane training methods. The reasoned action approach can provide a useful theoretical framework for understanding people's dog training behavior, as well as an approach to designing research studies.

Future research should include the development and validation of a scale to measure attitudes toward dog training methods, as well as developing and testing interventions that might help dog owners both gravitate toward humane training methods and parse dog training web sites so as to be able to identify inaccurate or misleading statements about dog training methods. A better understanding of dog owners' beliefs and knowledge about training (including the discursive construction of those beliefs) will enable organizations to be better able to plan brief interventions, for example, to persuade people to use food in training which many dog trainers say is a common sticking point in the adoption of humane methods. These approaches should take communication research into consideration when designing interventions. Research on the best ways to teach dog training methods would also be welcome (and was also suggested by Ziv, 2017).

### Summary and conclusions

Many dog owners continue to use aversive methods to train their dogs at least some of the time, despite the associated welfare risks. Aversive methods may cause fear, anxiety, and stress in themselves; do not address any underlying fear issues; may cause the dog to associate the aversive event with something other than what is intended (e.g., with the owner, thus affecting the dog-owner relationship); and likely mean that dogs are missing out on enrichment opportunities from reward-based dog training that include fun activities with the owner, cognitive enrichment, and increased variety in the diet from the use of food rewards.

Because people frequently cite themselves as the source of their dog training knowledge, it may be difficult to reach them with messages about appropriate training methods. The situation is compounded by the poor quality of information in popular dog

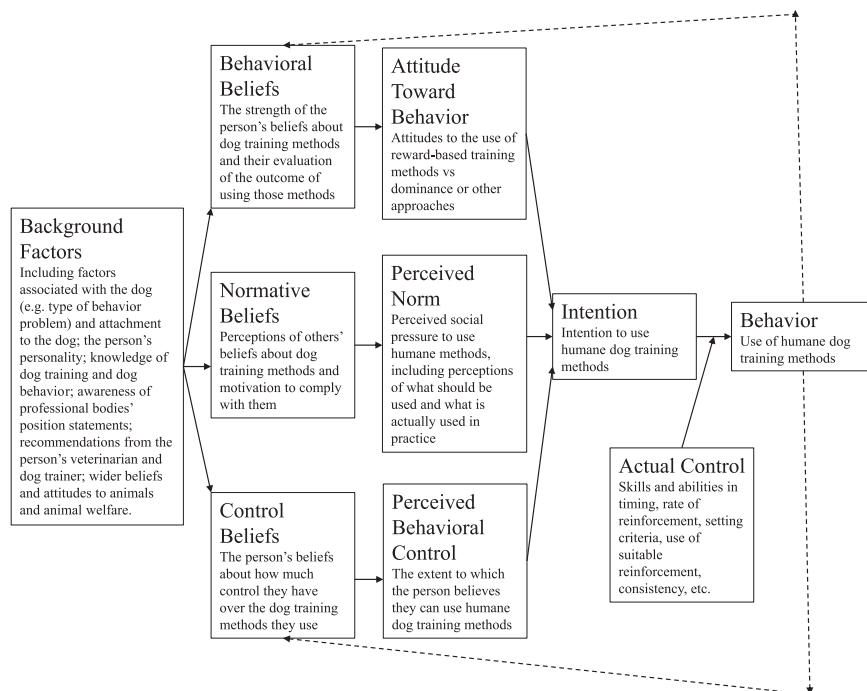


Figure. A reasoned action approach to the use of humane dog training methods, after Fishbein and Ajzen (2010).

training books, lack of regulation of dog trainers, and the continuing use and promotion of aversive techniques by both local and celebrity dog trainers. Differing positions of organizations may give the public the impression that there is no consensus on humane dog training methods when there is, and those that include aversives as a “last resort” may be interpreted (or misinterpreted) as giving support to the use of those methods. In addition, dog training is a skilled activity, and people may give up on positive reinforcement approaches if they do not have the necessary abilities (e.g., use of appropriate rewards such as food, timing of delivery of rewards, observation of the dog’s body language, getting the dog’s attention, etc.). The reasoned action approach is a promising way to look at how perceived social norms, and perceived and actual abilities, influence dog owners’ and trainers’ likelihood of using humane training methods. Given that aversive methods are a welfare risk to dogs, further research on how to understand people’s decisions on dog training and how best to promote and teach humane dog training methods is urgently needed.

### Acknowledgments

The author would like to thank Dr. Karen Overall and the anonymous reviewers for their helpful comments on an earlier version of this study.

### Ethical considerations

No ethical approval was necessary because there were no human or animal participants; the study is a review.

### Conflict of interest

There are no financial relationships or conflicts of interest to disclose.

### References

ABTC, 2014. The gazette (ABTC Newsletter). Available at: <http://www.abtcouncil.org.uk/images/abtnewsletter2.pdf>. Accessed October 1, 2015.

Alexander, M.B., Friend, T., Haug, L., 2011. Obedience training effects on search dog performance. *Appl. Anim. Behav. Sci.* 132, 152–159.

American Academy of Pediatrics, 1998. Guidance for effective discipline. Committee on psychosocial aspects of child and family health. *Pediatrics* 101, 723.

APDT, 2017. Position statement on LIMA. Available at: <https://apdt.com/wp-content/uploads/2017/01/position-statement-lima.pdf>. Accessed September 2, 2017.

APDT (UK), 2017. Available at: <http://www.apdt.co.uk/>. August 15, 2017.

Arhant, C., Bubbna-Litz, H., Bartels, A., Futschik, A., Troxler, J., 2010. Behavior of smaller and larger dogs: Effects of training methods, inconsistency of owner behavior and level of engagement in activities with the dog. *Appl. Anim. Behav. Sci.* 123, 131–142.

Armitage, C.J., Conner, M., 2001. Efficacy of the theory of planned behavior: A meta-analytic review. *Br. J. Soc. Psychol.* 40, 471–499.

Arnott, E.R., Early, J.B., Wade, C.M., McGreevy, P.D., 2014. Environmental factors associated with success rates of Australian stock herding dogs. *PLoS One* 9 (8), e104457.

AVSAB, 2007. Position statement on the use of punishment for behaviour modification in animals. Available at: [http://www.vetmed.ucdavis.edu/vmth/local\\_resources/pdfs/behavior\\_pdfs/AVSAB\\_Punishment\\_Statements.pdf](http://www.vetmed.ucdavis.edu/vmth/local_resources/pdfs/behavior_pdfs/AVSAB_Punishment_Statements.pdf). Accessed February 25, 2018.

AVSAB, 2008a. Position statement on puppy socialization. Available at: [https://avsab.org/wp-content/uploads/2016/08/Puppy\\_Socialization\\_Position\\_Statement\\_Download\\_-\\_10-3-14.pdf](https://avsab.org/wp-content/uploads/2016/08/Puppy_Socialization_Position_Statement_Download_-_10-3-14.pdf). Accessed September 1, 2017.

AVSAB, 2008b. Position statement on the use of dominance theory in behavior modification of animals. Available at: [https://avsab.org/wp-content/uploads/2016/08/Dominance\\_Position\\_Statement\\_download-10-3-14.pdf](https://avsab.org/wp-content/uploads/2016/08/Dominance_Position_Statement_download-10-3-14.pdf). Accessed February 25, 2018.

BCSPCA, 2016. Position statement on animal training. Available at: [https://spca.bc.ca/wp-content/uploads/BC\\_SPCA\\_Position\\_Statement\\_Animal\\_Training.pdf](https://spca.bc.ca/wp-content/uploads/BC_SPCA_Position_Statement_Animal_Training.pdf). Accessed September 1, 2017.

Becker, M., 2014. From fearful to fear free veterinary visits. *dvm360* 1st August 2014. Available at: <http://veterinaryteam.dvm360.com/fearful-fear-free-veterinary-visits>. Accessed September 1, 2017.

Blackwell, E.J., Twells, C., Seawright, A., Casey, R.A., 2008. The relationship between training methods and the occurrence of behavior problems, as reported by owners, in a population of domestic dogs. *J. Vet. Behav. Clin. Appl. Res.* 3, 207–217.

Blackwell, E.J., Bolster, C., Richards, G., Loftus, B.A., Casey, R.A., 2012. The use of electronic collars for training domestic dogs: Estimated prevalence, reasons and risk factors for use, and owner perceived success as compared to other training methods. *BMC Vet. Res.* 8, 93.

Blackwell, E.J., Bradshaw, J.W., Casey, R.A., 2013. Fear responses to noises in domestic dogs: Prevalence, risk factors and co-occurrence with other fear related behavior. *Appl. Anim. Behav. Sci.* 145, 15–25.

Branson, N., Cobb, M., McGreevy, P., 2009. Australian working dog survey report Australian Animal Welfare Strategy. Available at: <http://workingdogalliance.com.au/wp-content/uploads/2013/05/AWDS2009.pdf>. Accessed September 1, 2017.

Browne, C.M., Starkey, N.J., Foster, T.M., McEwan, J.S., 2017. Examination of the accuracy and applicability of information in popular books on dog training. *Soc. Anim.* 25, 411–435.

Casey, R.A., Loftus, B., Bolster, C., Richards, G.J., Blackwell, E.J., 2014. Human directed aggression in domestic dogs (*Canis familiaris*): Occurrence in different contexts and risk factors. *Appl. Anim. Behav. Sci.* 152, 52–63.

Canadian Veterinary Medical Association, 2015. Position statement on humane training methods for dogs. Available at: <https://www.canadianveterinarians.net/documents/humane-training-methods-for-dogs>. Accessed March 6, 2017.

Cobb, M., Branson, N., McGreevy, P., Lill, A., Bennett, P., 2015. The advent of canine performance science: Offering a sustainable future for working dogs. *Behav. Proc.* 110, 96–104.

Cooper, J.J., Cracknell, N., Hardiman, J., Wright, H., Mills, D., 2014. The welfare consequences and efficacy of training pet dogs with remote electronic training collars in comparison to reward based training. *PLoS One* 9 (9), e102722.

Deldalle, S., Gaunet, F., 2014. Effects of 2 training methods on stress-related behaviors of the dog (*Canis familiaris*) and on the dog–owner relationship. *J. Vet. Behav. Clin. Appl. Res.* 9, 58–65.

Dogs Trust, n.d. Training. Available at: <http://www.dogstrustdogschool.org.uk/training/>. Accessed December 4, 2017.

Drayton, A.K., Anderson, M.N., Knight, R.M., Felt, B.T., Fredericks, E.M., Dore-Stites, D.J., 2014. Internet guidance on time out: Inaccuracies, omissions, and what to tell parents instead. *J. Dev. Behav. Pediatr.* 35, 239–246.

Dreschel, N.A., 2010. The effects of fear and anxiety on health and lifespan in pet dogs. *Appl. Anim. Behav. Sci.* 125, 157–162.

Durrant, J.E., 1999. Evaluating the success of Sweden’s corporal punishment ban. *Child Abuse Negl.* 23, 435–448.

Durrant, J.E., Ensom, R., 2012. Physical punishment of children: Lessons from 20 years of research. *Can. Med. Assoc. J.* 184, 1373–1377.

ESCVE, 2017. Electronic training devices: ESCVE position statement. Available at: <http://www.essve.org/wp-content/uploads/2017/11/ESCVE-Position-Statement-e-collar.pdf>. Accessed February 25, 2018.

Eyberg, S.M., Nelson, M.M., Boggs, S.R., 2008. Evidence-based psychosocial treatments for children and adolescents with disruptive behavior. *J. Clin. Child. Adolesc. Psychol.* 37, 215–237.

Feng, L.C., Howell, T.J., Bennett, P.C., 2017. Comparing trainers’ reports of clicker use to the use of clickers in applied research studies: Methodological differences may explain conflicting results. *Pet Behav. Sci.* 3, 1–18.

Feuerbacher, E.N., Wynne, C.D., 2012. Relative efficacy of human social interaction and food as reinforcers for domestic dogs and hand-reared wolves. *J. Exp. Anal. Behav.* 98, 105–129.

Feuerbacher, E., Wynne, C., 2015. Shut up and pet me! Domestic dogs (*Canis lupus familiaris*) prefer petting to vocal praise in concurrent and single-alternative choice procedures. *Behav. Proc.* 110, 47–59.

Fishbein, M., Ajzen, I., 2010. Predicting and Changing Behavior: The Reasoned Action Approach. Psychology Press, New York.

Friedman, S.G., 2009. What’s wrong with this picture? Effectiveness is not enough. *J. Appl. Comp. Anim. Behav.* 3, 41–45.

Fukuzawa, M., Hayashi, N., 2013. Comparison of 3 different reinforcements of learning in dogs (*Canis familiaris*). *J. Vet. Behav. Clin. Appl. Res.* 8, 221–224.

Garland, A.F., Hawley, K.M., Brookman-Frazee, L., Hurlburt, M., 2008. Identifying common elements of evidence-based psychosocial treatments for children’s disruptive behavior problems. *J. Am. Acad. Child Adolesc. Psychiatry* 47, 505–514.

Greenebaum, J.B., 2010. Training dogs and training humans: Symbolic interaction and dog training. *Anthrozoös* 23, 129–141.

Hammer, M., Horst, C., Levine, E., Overall, K., Radosta, L., Rafter-Ritchie, M., Yin, S., O’Fallon, M.O., Davis, C.A., 2015. 2015 AAHA canine and feline behavior management guidelines. *J. Am. Anim. Hosp. Assoc.* 51, 205–221.

Haverbeke, A., Laporte, B., Depiereux, E., Giffroy, J.M., Diederich, C., 2008. Training methods of military dog handlers and their effects on the team’s performances. *Appl. Anim. Behav. Sci.* 113, 110–122.

Herron, M., Shofer, F., Reisner, I., 2009. Survey of the use and outcome of confrontational and non-confrontational training methods in client-owned dogs showing undesired behaviors. *Appl. Anim. Behav. Sci.* 117, 47–54.

Hiby, E.F., Rooney, N.J., Bradshaw, J.W.S., 2004. Dog training methods: Their use, effectiveness and interaction with behavior and welfare. *Anim. Welf.* 13, 63–69.

IAABC, n.d., IAABC position statement on LIMA. Available at: <https://iaabc.org/about/LIMA>. Accessed September 2, 2017.

Kaminski, J.W., Valle, L.A., Filene, J.H., Boyle, C.L., 2008. A meta-analytic review of components associated with parent training program effectiveness. *J. Abnorm. Child. Psychol.* 36, 567–589.

- Kornell, N., Vaughn, K.E., 2016. How retrieval attempts affect learning: A review and synthesis. *Psychol. Learn. Motiv.* 65, 183–215.
- Lloyd, J.K., 2017. Minimising stress for patients in the veterinary hospital: Why it is important and what can be done about it. *Vet. Sci.* 4, 22.
- McGilloway, S., Mhaille, G.N., Bywater, T., Furlong, M., Leckey, Y., Kelly, P., Comiskey, C., Donnelly, M., 2012. A parenting intervention for childhood behavioral problems: A randomized controlled trial in disadvantaged community-based settings. *J. Consult. Clin. Psychol.* 80, 116–127.
- Mariti, C., Raspanti, E., Zilocchi, M., Carlone, B., Gazzano, A., 2015. The assessment of dog welfare in the waiting room of a veterinary clinic. *Anim. Welf.* 24, 299–305.
- Mariti, C., Pierantoni, L., Sighieri, C., Gazzano, A., 2017. Guardians' perceptions of dogs' welfare and behaviors related to visiting the veterinary clinic. *J. Appl. Anim. Welf. Sci.* 20, 24–33.
- Masson, S., de la Vega, S., Gazzano, A., Mariti, C., Pereira, G.D.G., Halsberghe, C., Leyvraz, A.M., McPeake, K., Schoening, B., 2018. Electronic training devices: discussion on the pros and cons of their use in dogs as a basis for the position statement of the European Society of Veterinary Clinical Ethology (ESVCE). *J. Vet. Behav.* <https://doi.org/10.1016/j.jveb.2018.02.006>.
- McBride, E.A., Montgomery, D.J., 2018. Animal welfare: A contemporary understanding demands a contemporary approach to behaviour and training. *People Anim.: Int. J. Res. Pract.* 1, 4.
- McEachan, R.R.C., Conner, M., Taylor, N.J., Lawton, R.J., 2011. Prospective prediction of health-related behaviors with the theory of planned behavior: A meta-analysis. *Health Psych. Rev.* 5, 97–144.
- McEachan, R., Taylor, N., Harrison, R., Lawton, R., Gardner, P., Conner, M., 2016. Meta-analysis of the reasoned action approach (RAA) to understanding health behaviors. *Ann. Behav. Med.* 50, 592–612.
- McGowan, R.T., Rehn, T., Norling, Y., Keeling, L.J., 2014. Positive affect and learning: exploring the "Eureka Effect" in dogs. *Anim. Cogn.* 17, 577–587.
- Mellor, D.J., 2016. Moving beyond the "Five Freedoms" by updating the "Five Provisions" and introducing aligned "Animal Welfare Aims". *Animals* 6, 59.
- Metcalfe, J., 2017. Learning from errors. *Annu. Rev. Psychol.* 68, 465–489.
- Mills, D.S., 2005. What's in a word? A review of the attributes of a command affecting the performance of pet dogs. *Anthrozoös* 18, 208–221.
- Morawska, A., Sanders, M., 2011. Parental use of time out revisited: a useful or harmful parenting strategy? *J. Child Family Stud.* 20, 1–8.
- Okamoto, Y., Ohtani, N., Uchiyama, H., Ohta, M., 2009. The feeding behavior of dogs correlates with their responses to commands. *J. Vet. Med. Sci.* 71, 1617–1621.
- Overall, K., 2013. *Manual of Clinical Behavioral Medicine for Dogs and Cats*. Elsevier Health Sciences, St. Louis, MO.
- Owen, D.J., Slep, M.L.S., Heyman, R.E., 2012. The effect of praise, positive nonverbal response, reprimand, and negative nonverbal response on child compliance: a systematic review. *Clin. Child Fam. Psychol. Rev.* 15, 364–385.
- Payne, E.M., Arnott, E.R., Early, J.B., Bennett, P.C., McGreevy, P.D., 2015. Dogmanship on the farm: Analysis of personality dimensions and training styles of stock dog handlers in Australia. *J. Vet. Behav. Clin. Appl. Res.* 10, 471–478.
- Payne, E.M., Bennett, P.C., McGreevy, P.D., 2017. DogTube: An examination of dog-manship online. *J. Vet. Behav. Clin. Appl. Res.* 17, 50–61.
- Pirrone, F., Pierantoni, L., Mazzola, S., Vigo, D., Albertini, M., 2015. Owner and animal factors predict the incidence of, and owner reaction toward, problematic behaviors in companion dogs. *J. Vet. Behav. Clin. Appl. Res.* 10, 295–301.
- Prinzle, P., Stams, G.J.J., Deković, M., Reijntjes, A.H., Belsky, J., 2009. The relations between parents' big five personality factors and parenting: A meta-analytic review. *J. Pers. Soc. Psychol.* 97, 351–362.
- Riley, A.R., Wagner, D.V., Tudor, M.E., Zuckerman, K.E., Freeman, K.A., 2017. A survey of parents' perceptions and use of time-out compared to empirical evidence. *Acad. Pediatr.* 17, 168–175.
- Rooney, N.J., Cowan, S., 2011. Training methods and owner-dog interactions: Links with dog behavior and learning ability. *Appl. Anim. Behav. Sci.* 132, 169–177.
- Rooney, N., Gaines, S., Hiby, E., 2009. A practitioner's guide to working dog welfare. *J. Vet. Behav. Clin. Appl. Res.* 4, 127–134.
- Rooney, N.J., Clark, C.C., Casey, R.A., 2016. Minimizing fear and anxiety in working dogs: A review. *J. Vet. Behav. Clin. Appl. Res.* 16, 53–64.
- Ros, R., Hernandez, J., Graziano, P.A., Bagner, D.M., 2016. Parent training for children with or at risk for developmental delay: The role of parental homework completion. *Behav. Ther.* 47, 1–13.
- Roshier, A., McBride, E., 2012. Canine behavior problems: Discussions between veterinarians and dog owners during annual booster consultations. *Vet. Rec.* 172, 235.
- Sanders, M.R., 2008. Triple P-positive parenting program as a public health approach to strengthening parenting. *J. Fam. Psychol.* 22, 506.
- Schilder, M.B., van der Borg, J.A., 2004. Training dogs with help of the shock collar: Short and long term behavioral effects. *Appl. Anim. Behav. Sci.* 85, 319–334.
- Shivley, C.B., Garry, F.B., Kogan, L.R., Grandin, T., 2016. Survey of animal welfare, animal behavior, and animal ethics courses in the curricula of AVMA Council on Education-accredited veterinary colleges and schools. *J. Am. Vet. Med. Assoc.* 248, 1165–1170.
- Siracusa, C., Provoost, L., Reisner, I.R., 2017. Dog-and owner-related risk factors for consideration of euthanasia or rehoming before a referral behavioral consultation and for euthanizing or rehoming the dog after the consultation. *J. Vet. Behav. Clin. Appl. Res.* 22, 46–56.
- Stapleton-Frappell, L., 2015. Dog training: It's not just semantics. Blogs from the Guild. Available at: <https://ppgworldservices.com/2015/09/21/dog-training-its-not-just-semantics/>. Accessed September 1, 2017.
- Taylor, C.A., Hamvas, L., Rice, J., Newman, D.L., Dejong, W., 2011. Perceived social norms, expectations, and attitudes toward corporal punishment among an urban community sample of parents. *J. Urban. Health.* 88, 254–269.
- Todd, Z., 2015. Re-arranging metaphors for dogs. *Companion Animal Psychology* 22nd July 2015. Available at: <http://www.companionanimalpsychology.com/2015/07/re-arranging-metaphors-for-dogs.html>. Accessed September 1, 2017.
- Wan, M., Bolger, N., Champagne, F., 2012. Human perception of fear in dogs varies according to experience with dogs. *PLoS One* 7, e51775.
- Webb, T.L., Joseph, J., Yardley, L., Michie, S., 2010. Using the internet to promote health behavior change: A systematic review and meta-analysis of the impact of theoretical basis, use of behavior change techniques, and mode of delivery on efficacy. *J. Med. Internet. Res.* 12, e4.
- Ziv, G., 2017. The effects of using aversive training methods in dogs—A review. *J. Vet. Behav. Clin. Appl. Res.* 19, 50–60.