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Biographical Sketch: **Susan G. Friedman, Ph.D.**, is a psychology professor at Utah State University, specializing in applied behavior analysis (ABA), the technology of behavior change. Over the last decade, she has pioneered the dissemination of ABA principles, procedures and ethical standards to improve the quality of life for all learners.

WHAT'S WRONG WITH THIS PICTURE? EFFECTIVENESS IS NOT ENOUGH

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As to diseases, make a habit of two things – to help, or at least to do no harm. Hippocrates

Of the many important facets expressed in Hippocrates' simple ideal, surely one of the most important is its universality. Indeed, this ethical principle is as applicable to caregivers as it is to physicians; to behavior problems as to diseases; and to animals as to people. However, as straightforward as the dichotomy between helping and harming may first appear, it can be a complicated subject regarding the procedures used to change an animal's behavior.

What's Wrong with this Picture?

Unfortunately, it is not unheard of for dogs to be shocked, hung from leashes, and deprived of food and social interaction in response to problem behaviors. Thankfully, most people have no problem judging these strategies as inappropriate to the point of being physically abusive. However, consider the following suggestions for solving common behavior problems with dogs:

- When a dog snarls at skateboards, restrain it while boys skate around the dog.
- When a dog avoids walking on linoleum, carry it to the center of the kitchen and walk away.
- When a dog struggles to escape a comb held close to its face, pin it down while combing its muzzle.
- When a dog barks incessantly, spray it with water or bang pan with a spoon.
- When a dog teats non-food items, push its head back until it yelps.

It may be harder to judge the inappropriateness of these strategies because they have been suggested to caregivers so often for so long. The people who continue to advocate them do so on the grounds that these strategies can be effective for reducing problem behaviors. They say with a shrug, "As long as it works!" Inarguably, these approaches do work *some of the time*. (Indeed, the fact that these strategies are only effective some of the time explains the persistent use of them, in the same way intermittent jackpots account for persistent gambling.) However, underlying the issue of effectiveness is a much larger problem: The lack of appropriate criteria on which to judge, and select, the procedures we use to reduce problem behaviors. Effectiveness is one criterion, but effectiveness alone is not enough.

Intrusiveness and Social Acceptability

The lack of a standard to help us select behavior reduction procedures is a crucial matter. Without such a standard, we are likely to intervene on the basis of effectiveness alone, without due consideration of humaneness. To be maximally humane, our interventions should be as unintrusive for the learner as possible and still be effective. Carter and Wheeler¹ define intrusiveness according to two important criteria: 1) the level of social acceptability of an intervention, and 2) the degree to which the learner maintains control while the intervention is in effect.

The social acceptability of a behavior-change procedure is a personal judgment about what is appropriate and reasonable for a specific problem and animal. Research on the acceptability of

behavioral interventions has consistently shown that teachers, psychologists, parents and children rate positive reinforcement-based procedures as more acceptable than punishment-based procedures.^{2,3} The known side effects of punishment-based procedures further support this judgment. These side effects include increased aggression, generalized fear, apathy, and escape/avoidance behaviors, all of which are frequently observed in companion animals. When we see these behaviors displayed by animals in our care, it may be an indication that they experience life among humans as punishing, in spite of our best intentions. There are additional problems with punishment-based procedures to consider carefully, as well:

- Punishment doesn't teach learners what *to do* instead of the problem behavior.
- Punishment doesn't teach caregivers how to teach alternative behaviors.
- Punishment is really two aversive events – the onset of a punishing stimulus and the forfeiture of the reinforcer that has maintained the problem behavior in the past.
- Punishment requires an increase in aversive stimulation to maintain initial levels of behavior reduction.
- Effective punishment reinforces the punisher, who is therefore more likely to punish again in the future, even when antecedent arrangements and positive reinforcement would be equally, or more, effective.

Intrusiveness and Learner Control

The second of Carter and Wheeler's criteria, the degree to which a behavior reduction procedure preserves learner control, is essential to developing a standard of humane, effective practice. Research demonstrates that to the greatest extent possible all animals should be empowered to use their behavior to control significant events in their lives, i.e., to use their behavior *effectively* to accomplish a desired outcome. Indeed, that is what behavior has evolved to do. When an animal's attempts to escape aversive events are blocked they tend to give up trying even when their power to escape is restored. This phenomenon, called learned helplessness, has been replicated with a wide variety of animal species (e.g., dogs, cats, monkeys, cockroaches, children, adult humans⁴). Response blocking is associated with additional pathological effects such as depression, learning deficits, emotional problems⁴ and suppressed immune system activity⁵.

An animal's functional behavior is made ineffective whenever we ignore its fears, force it to go where it resists going, and coerce it to do things against its will. Even locking a dog in its crate with a fear-eliciting toy, based on the rationale that "he'll get used to it," renders the dog unnecessarily powerless to escape. When a lack of control becomes a life-style, it may result in the aberrant behaviors dogs do such as excessive barking, repetitive licking, and phobic behavior.

A Hierarchy of Intrusions

Within the field of applied behavior analysis, there is a 40-year-old standard that promotes the most positive, least intrusive behavior reduction procedures (also known as the least restrictive behavior intervention, LRBI). This standard is upheld in public federal law protecting children (IDEA, 1997), and the Guidelines for Responsible Conduct for Behavior Analysts (Behavior Analyst Certification Board, 2004). According to this federal and professional standard, procedures with aversive stimuli are more intrusive and would be recommended only after less intrusive procedures have been tried.

To assist in making these judgments, Alberto and Troutman⁶ described a hierarchy of procedural alternatives for behavior reduction. At the top of their hierarchy are Level 1 procedures (variations of differential reinforcement of alternative behaviors) that are considered most socially acceptable and maintain the highest degree of control for the learner. At the bottom of their hierarchy are Level 5 procedures that are considered least socially acceptable and maintain the least amount of control for the learner (positive punishment procedures).

As to the question, "Is effectiveness enough?" the answer is a resounding "NO!" when it comes to selecting behavior interventions for children. Surely a similar intervention hierarchy, both ethical and feasible to implement, would be in the best interest of companion animals, their caregivers and the professionals working with them to solve behavior problems. By selecting the least intrusive, effective

procedures (i.e., positive reinforcement-based and empowering) we increase the humaneness of our interventions without compromising our learning objectives.

A Proposed Hierarchy of Intervention Strategies

Expanding on Alberto and Troutman's hierarchy for teachers, Figure 1 shows a proposed hierarchy of intervention strategies that takes into account distant and immediate antecedent arrangements. The overwhelming majority of behavior problems can be prevented or resolved with one or more strategies represented in Levels 1 - 4 (i.e., arranging distant and immediate antecedents, positive reinforcement and differential reinforcement of alternative behaviors). Level 5 (i.e., extinction, negative reinforcement, and negative punishment, in no particular order) may occasionally be the ethical, effective choice under certain circumstances. Level 6, positive punishment (i.e., the application of aversive stimuli that reduces the probability of the behavior occurring again), is rarely necessary (or suggested by standards of best practice) when one has the requisite knowledge of behavior change and teaching skills.



Figure 1. A proposed hierarchy of behavior change procedures using the most positive, least intrusive, effective criteria (Level 1 most recommended - Level 6 least recommended; Level 5 is in no particular order).

A Note for Professionals Consulting on Behavior

What makes behavior analysis unique according to Bailey and Burch⁷, is also relevant to professionals working with animal behavior: Both behavior analysts and animal behavior consultants supervise others who carry out the behavior intervention plans, such as paraprofessionals and caregivers. The interventions are usually implemented where the behavior problem actually occurs, rather than the consultant's office. The participants are often very vulnerable and unable to protect themselves from harm. These similarities, and others listed below, suggest that the ethical standards established for behavior analysts has widespread relevance to behavior consultants working with any species of animal. For example, the following behavior analysts' standards appear desirable for all behavior-related professions:

- Protect the participants' welfare at all times.
- Use interventions that are custom-tailored for each individual.
- Design interventions on the basis of a functional assessment of the problem behavior.
- Use only procedures for which there is a scientific basis (evidence-based treatment).
- Use scientific methods to implement and evaluate interventions (e.g., collect pre-intervention baseline data and ongoing treatment data until the intervention is terminated).

Conclusion

Effectiveness is not enough when it comes to choosing and applying behavior-change interventions. Borrowing from the field of applied behavior analysis with human learners, an expanded hierarchy of procedures is proposed that adds a second criterion to effectiveness: relative intrusiveness. Without this ethical standard, interventions are likely to be selected on the basis of convenience, familiarity, speed, or blind authority, and may inadvertently produce the detrimental side effects of punishment and learned helplessness in our animals. The commitment to using the most positive, least intrusive, effective interventions allows us to think before we act, so that we make choices about the *means* by which we accomplish our behavior goals. In this way, we can be both effective and humane. This is the minimum standard of care we should stretch to meet on behalf of the welfare of companion animals and caregivers alike.

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