

## 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 parrots 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 birds to be pinned to the ground with a stick for biting, deprived of food and social interaction for resisting stepping onto hands, and left in cold showers for long bouts of "screaming." 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 parrots:

- When a bird bites, drop it on the floor.
- When a bird refuses to come out of its cage, grab it with a towel or glove.
- When a bird is too noisy, cover its cage or swing it on your hand until it's winded from flapping.
- When a bird chews a cupboard, spray it with water or bang a spoon on a pan.

- When a bird resists stepping up, make it go from hand to hand repeatedly like climbing a ladder until exhausted.

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 Wheeler (2005) 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 shown that teachers, psychologists, parents and children consistently rate positive reinforcement-based procedures as more acceptable than punishment-based procedures (Elliot, 1988; Miltenberger, 1990). 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 captive parrots. When we see these behaviors displayed by animals in our care, it may be an indication that the animals experience their 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 the 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 some 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, including dogs, cats, monkeys, cockroaches, children, and adult humans (Maier & Seligman, 1976). Response blocking is associated with additional pathological effects such as depression, learning deficits, emotional problems (Maier & Seligman, 1976) and suppressed immune system activity (Laudenslager, Ryan, Drugan, & Hyson, 1983).

Parrots' functional behavior is made ineffective whenever we ignore their bites, force them to go in and out of cages, and coerce them to step on and off our hands. Even locking a parrot in its cage with a fear-eliciting toy, based on the rationale that "he'll get used to it," renders parrots unnecessarily powerless to escape. When a lack of control becomes a lifestyle, it may result in the aberrant behaviors captive parrots do, such as excessive screaming, feather picking, self mutilation, mate killing, and phobias.

### **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 school children (Individuals with Disabilities Act, 1997), and the Behavior Analyst Certification Board Guidelines for Responsible Conduct for Behavior Analysts (2004). 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 Troutman (1999) described a hierarchy of procedural alternatives for behavior reduction. At the top of the hierarchy are Level 1 procedures (variations of differential

reinforcement of alternative behaviors) that are considered most socially acceptable and maintain the highest amount of control for the learner. At the bottom of the hierarchy are Level IV 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 when selecting behavior interventions for school children, the answer is a resounding “NO!” Surely a similar intervention hierarchy, both humane and feasible to implement, would be in the best interest of captive 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., negative punishment, negative reinforcement, and extinction) 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 behavior knowledge and teaching skills.

<p style="text-align: center;"><b>Level 1</b></p> <p>Distant antecedents: Address medical, nutritional, and physical environment variables.</p> <p>Example: Resolve feather picking by removing the ingested earring, improving diet, adding soft wood and paper items to cage and providing opportunities for exercise.</p>
<p style="text-align: center;"><b>Level 2</b></p> <p>Immediate antecedents: Redesign setting events, change motivations, and add or remove discriminative stimuli (cues) for the problem behavior.</p> <p>Example: Move play gym away from window frame to redirect chewing; provide focused 1:1 time before leaving parrot on play gym to reduce wandering; remove earrings before holding bird to reduce snatching.</p>
<p style="text-align: center;"><b>Level 3</b></p> <p>Positive reinforcement: Contingently deliver a consequence to increase the probability that the right behavior will occur, which is more reinforcing than the problem behavior.</p> <p>Example: When caregiver says “Crate!”(A), if the parrot walks into the crate (B), then the caregiver gives a treat and pets the bird (C).</p>

<p style="text-align: center;"><b>Level 4</b></p> <p>Differential reinforcement of alternative behavior: Reinforce an acceptable replacement behavior and remove the maintaining reinforcer for the problem behavior.</p> <p>Example: When caregiver walks in the room (A), if the bird keeps two feet on perch (B), then the caregiver praises and offers a treat. When the caregiver walks in the room (A), if the bird frantically rocks back and forth (B), then the caregiver ignores the bird. Keeping both feet on the perch will likely increase and rocking will likely decrease.</p>
<p style="text-align: center;"><b>Level 5 (no sequential order of intrusiveness intended)</b></p> <p>a. Negative punishment: Contingently withdraw a positive reinforcer to reduce the probability that the problem behavior will occur.</p> <p>Example: As caregiver installs seed cup (A), if parrot bites cage bars (B), then the caregiver removes seed cup for 5 seconds (C). Biting cage bars will likely decrease.</p> <p>b. Negative reinforcement: Contingently withdraw an aversive antecedent stimulus to increase the probability that the right behavior will occur.</p> <p>Example: When caregiver offers hand, holding a towel with other hand (A), if the parrot steps up (B), then the towel is removed (C). Stepping up will likely increase.</p> <p>c. Extinction: Permanently remove the maintaining reinforcer to suppress the behavior or reduce it to baseline levels.</p> <p>Example: Enlist children's help to ignore the parrot's attention-maintained swear words.</p>
<p style="text-align: center;"><b>Level 6</b></p> <p>Positive punishment: Contingently deliver an aversive consequence to reduce the probability that the problem behavior will occur.</p> <p>Example: As caregiver passes through doorway with bird on hand (A), if the parrot bites (B), then the caregiver shakes hand sharply, dropping the bird on the floor (C). Biting will likely decrease.</p>

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).

### **A Note for Professionals Consulting on Behavior**

What makes behavior analysis unique, according to Bailey and Burch (2005), 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 an

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 may also have widespread relevance to behavior consultants working with any species of animal. For example, the following behavior analysis 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 with animals. 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 more

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 parrots. The commitment to use the most positive, least intrusive, effective interventions slows us down so that we think before we act, and make choices about the means by which we accomplish our behavior goals. In this way, we can be both effective and humane, a minimum standard of care we should rise to meet on behalf of the welfare of captive animals and caregivers alike.

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