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The Association of Animal Behavior Professionals (AABP) was founded to promote excellence in professionalism and a strong commitment to nonaversive methods among behavioral analytic oriented technologists of companion animal behavior. The AABP seeks to establish a voluntary community of members aspiring to and sustaining these principles.

Audience: Professional companion animal trainers and behavior consultants.

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Editor's Introduction

Welcome to the third issue of the Journal of Applied Companion Animal Behavior (JACAB). In this issue, we have tried to include more essays related to the behavior analytic orientation as a theme in order to help promote this approach in training and behavior consulting. We are especially pleased to have permission to publish some of Susan G. Friedman's articles on the topic.

I am also pleased to present what I hope will be a useful model for decision making regarding the use of aversive stimulation. I believe it is a major improvement over the most prominent model in animal behavior consulting and hope that it gains wide appeal and usage. It will also form the basis of the AABP position on the use of aversive stimulation and be published on the website, making it freely accessible to the public. I am also pleased to present, in the same issue, a related article written by Susan G. Friedman.

Enjoy!

James O'Heare

Managing Editor, JACAB

The Least Intrusive Effective Behavior Intervention (LIEBI) Algorithm and Levels of Intrusiveness Table: A Proposed Best-Practices Model

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O’Heare, J. (2009). The least intrusive effective behavior intervention (LIEBI) algorithm and levels of intrusiveness table: A proposed best-practices model. *Journal of Applied Companion Animal Behavior*, 3(1), 7–25.

There is very little published in the animal behavior consulting literature that directly addresses the topic of how consultants should decide whether or not to use aversive stimulation, and under what circumstances any particular level of aversiveness is justified. This is surprising, considering how important the topic is and how much it is discussed and debated in public and professional forums. In this essay, I will propose a best-practices model, including a decision-making algorithm and a levels of intrusiveness table, regarding the use of aversive stimulation. I will discuss in detail how to work through the decision-making process. This process will be referred to as the Least Intrusive Effective Behavior Intervention (LIEBI) model. There are widely differing opinions on the topic. While recognizing that there may be instances when aversive stimulation is called for, this particular algorithm will emphasize how to implement the least intrusive effective intervention possible and, when a more intrusive intervention is required, how to ensure that the decision and implementation are carried out with due professional diligence.

Preliminary Concepts

It is important to avoid dogmatic positions and groupthink (“type of thought exhibited by group members who try to minimize conflict and reach consensus without critically testing, analyzing, and evaluating ideas;” “Groupthink,” n.d.) in discussing what level of intrusiveness in behavior change programming is justified under what circumstances. An argument regarding whether to use aversive stimuli should recognize some initial assumptions, which I will discuss here in order to help us avoid an excessively

simplicistic treatment of the topic, something all too common. Questions such as whether to use aversive stimulation, under what conditions, and how to choose what form it will take in a behavior change program are always about weighing the likely benefits and the likely risks of the intervention in question, in the context in question. This decision requires recognizing that intrusiveness can be thought of as occupying positions on a continuum from mildly intense and unlikely to result in harm to highly intense and much more likely to result in harm. Furthermore, effectiveness is not sufficient to justify highly intrusive interventions (Friedman, 2009). In the weighing process, it is important to remember that, because we are committed to “do no harm,” we are ethically obliged to ensure we choose the options that are the least intrusive possible.

I will clarify some important terms. The word *aversive* refers to stimulation that an organism will act to escape or avoid. Whether stimulation is aversive or not is an all-or-none phenomenon. Stimulation either is or is not aversive. Once we have determined that stimulation is aversive, we think of aversive stimulation as either more or less aversive. This is *aversiveness*. For our purposes, *intrusiveness* can be defined by the degree to which a procedure impacts a learner negatively—that is, causes harm in one way or another. The more problematic the side effects an intervention is likely to generate (e.g., injury, generalized problematic emotional behavior including fear or anxiety, increased aggressive behaviors, apathy or generalized behavioral suppression, countercontrol), the more harm is likely to be done and the more intrusive the intervention

would be considered. Some (see Carter & Wheeler, 2005) define intrusiveness by how socially acceptable the intervention is and the degree to which the learner can control the aversive stimulation. If this is intended as a means of judging which procedures are likely to cause more or less harm (as defined above) in a given context, it seems acceptable; however, if degree of intrusiveness is intended to be determined by surveying professionals, this leaves open the question of why a given intervention is more or less intrusive than some other intervention. Measuring side effects as a measure of harm and hence intrusiveness seems more objective than surveying professional opinion. Whether something is socially acceptable does not address the question posed to it. I will leave further exploration of this debate for elsewhere. The LIEBI model is open to any of several measures of harm or intrusiveness.

The term Least Intrusive Effective Behavior Intervention may be new, but the principle is not. It has been known for 40 years (Bailey & Burch, 2005) by a few names, including the “Least Intrusive Behavior Intervention” (LIBI), or “Least Restrictive Environment” (LRE) in behavior analysis, or “Least Intrusive Minimally Aversive” (LIMA) in an eclectic orientation coined “cynopraxis” by Lindsay (2001, p. 38). The latter has become popular in recent years in some dog training circles, although LIMA seems conceptually awkward and redundant (it is not clear what the difference is between “least intrusive” and “minimally aversive,” and “minimally aversive” may suggest a need for some level of aversiveness). I am loath to coin a new term and thereby contribute to a “terminology tumult” (Friedman, 2006), but working effectiveness into the concept is intended to promote progress in the conceptual formulation, since we are ethically obliged to provide both effective *and* minimally intrusive interventions. Furthermore, neither LRE nor LIBI are common terms in the animal behavior consulting field. The term is not as important as the principle involved. If you are performing a literature search on the topic, these other terms may be helpful.

For other terms that are not defined in this essay, see the glossary links at the end of the essay for definitions.

The Ethics of Effectiveness and Minimal Intrusion: Why We Consider this Issue

Interventions are judged not only by how effective they are narrowly in terms of the impact of the intervention on the target behavior, but also in a broader ethical context of the impact on the individual as a whole and, to a lesser extent, even on the guardian, the professional and the field as a whole. Obviously, effectiveness is an important feature of an intervention, but if we make effectiveness the only criterion by which we determine the appropriateness of an intervention, we risk failing to consider some other ethical objectives.

Aversive stimulation produces well-known side effects (see Sidman, 2000, for a general overview) that may influence the target behavior but can also cause serious secondary problems that may not be considered if one only looks at the level and trend of the target behavior alone. Any question about the effectiveness of aversive stimulation must also look at the broader effects on the individual. In this regard, I (O’Heare, 2007, pp. 261–265) have argued that punitive interventions do not “work” in this broader context.

Friedman (2009) makes the very important observation that effectiveness of an intervention is insufficient as a criterion for the use of aversive stimulation. It is widely agreed among those from a wide variety of philosophical orientations that treating others in an invasive or highly intrusive manner, where it is unnecessary to do so, is morally problematic. We recognize ethically that the autonomy and dignity of others deserve respect. It is a cornerstone ethical principle in the helping professions that we implement the least intrusive intervention available. We are ethically obliged to construct interventions that are not only effective but also minimally intrusive. It is better to explicitly acknowledge and ground our discussion in ethics rather than ignore the reason we explore this topic to begin with.

The companion animals we deal with in our profession are vulnerable parties in the professional relationship we establish with them and their guardian, much like young children are in counseling relationships between a psychologist, a child and their parents. Companion animals cannot provide informed consent regarding the interventions that we choose to implement for them. Therefore, the responsible consultant ought to be dedicated to ensuring that the interests of the companion animal are carefully considered and that the animal is accorded respect for their dignity by intervening in a minimally intrusive manner (Association of Animal Behavior Professionals, 2008, principle 2.02; Behavior Analyst Certification Board, 2004, guideline 4.07). An effective behavior change program that helps the companion animal build their repertoire of adaptive behaviors is in the animal's interest, but effectiveness is not enough.

In summary, we have an ethical obligation to find the least intrusive and effective intervention possible, not only because a minimally intrusive intervention is less likely to create problematic side effects and therefore be more effective in the long run, but also, more basically, out of respect for the autonomy, dignity and rights of the learner. Hence, effectiveness is important but it is not enough.

Why Implement the LIEBI Model?

Why should you use the LIEBI model? After all, it clearly requires a higher response effort than not using such a process. As with all behaviors, we look for the reinforcement made available for it. The LIEBI model is proposed as "best practice" because of its careful attention to ethical responsibility. Delaying an immediate impulsive payoff in favor of a much higher long-term payoff is sometimes called wisdom (Chance, 2009). Considerately working through the process of finding the least intrusive effective intervention is a wise choice, partly because it avoids excess side effects associated with highly intrusive methods, which influence both the target behavior and the general behavioral wellbeing of the learner as a whole. If you avoid the side effects associated with aversive stimulation, these side effects will not

be able to interfere with your goals. You also access a sense of professional ethical pride because you are treating others with respect for their autonomy, dignity and rights. Choosing to adopt a professional policy of working through the LIEBI model outlined here, rather than using a less stringent process, is beneficial for the companion animal, the client, the individual professional and the profession as a whole. The companion animal benefits from the standard by experiencing a higher degree of comfort and behavioral wellbeing, learning acceptable adaptive behaviors that ultimately promote a more adaptive social relationship within the family. The guardian benefits from the standard by avoiding having to deal with the well-known side effects that commonly occur with the use of highly intrusive methods, and they will achieve their goals in an orderly manner. The individual professional benefits with stronger success rates, reduced risk of injury and liability exposure, and the respect and trust of colleagues and allied professionals. The profession as a whole benefits from the standard with market growth and increased respect from the public and allied professionals. Notice that these are the same reinforcers available for adopting all best practices and high-standard ethical guidelines. In summary, adopting a high standard of ethical conduct, including a dedication to implementing the LIEBI or similar model, benefits us more in the long run than failure to adopt such a practice.

Key Features of the LIEBI Model

The most prominent discussions of this topic outside of my own (O'Heare, 2007, pp. 307–311) are in the Delta Society's (2001) booklet, *Professional Standards for Dog Trainers: Effective, Humane Principles*, which outlines an algorithm to help dog trainers decide when to use aversive training methods. The model presented here has some similarities with the Delta Society algorithm but it is also unique. It is unique in that its focus is behavior analytic. As well, it more strongly emphasizes avoiding implementation of highly intrusive interventions by diligently attempting to find less intrusive solutions and, when needed, ensuring that the decision-making process is carried out responsibly. It emphasizes tracking the target

behavior quantifiably, and “success” will emphasize meeting objective, quantified goals. Failure to achieve the goals leads first to careful reevaluation of the goals, the contingency statement, application-related variables, the procedure choice and the options. Only upon careful reevaluation and consideration of other, less intrusive options is consideration of a more intrusive approach justified. Furthermore, rather than treating intrusiveness as an all-or-none phenomenon, the LIEBI model recognizes a continuum of intrusiveness. A competent professional should be able to work their way through cases in this manner, avoiding almost all use of highly intrusive interventions in their behavior change programs.

Key and distinct features of the LIEBI model:

- Behavior analytic (scientific: operational and observable/measurable).
- Emphasizes strong standard of professional due diligence for avoiding highly intrusive interventions, with careful reevaluation and other prevention measures.
- Recognizes intrusiveness as a continuum rather than an all-or-none phenomenon and the necessity to justify higher levels of intrusiveness with due diligence.

The basic process is similar whether you are training a new behavior or attempting to reduce the strength of a problem behavior. Strengthening a behavior refers most commonly to increasing the frequency of the behavior (Chance, 2009, p. 130). In either case, you are changing the strength of certain specific behaviors in certain environments. In most cases, eliminating a problem behavior involves replacing it with a more desirable behavior, by making the discriminative stimulus that sets the occasion for the problem behavior come to set the occasion for the new, desirable behavior. In the discussion that follows, I will first follow the path on the left side of the LIEBI algorithm (Figure 1), which addresses reducing the strength of problem behaviors, and then address the right-hand side.

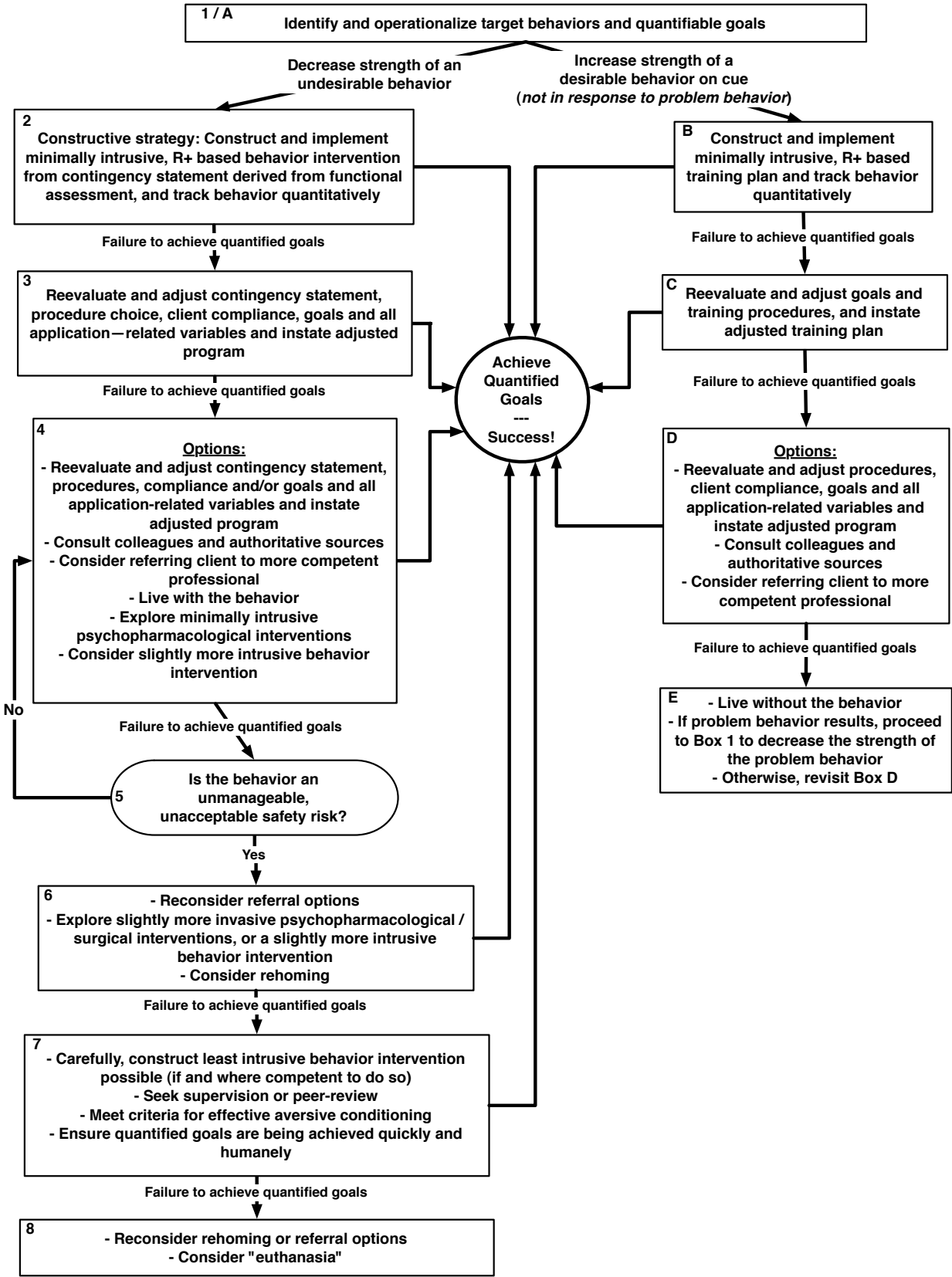


Figure 1. Algorithm for protocols in determining when to implement intrusive behavior interventions.

Decreasing the Strength of an Undesirable Behavior

Box 1/A. Identify and operationalize target behaviors and quantifiable goals. In the case of reducing the strength of a problem behavior, the problem behavior is identified based on a full functional assessment, and a quantifiable goal is flexibly determined. Although we cannot expect to predict a timeframe for achieving this goal, the goal can be developed through construction and implementation of a behavior change program in the next step. The goal itself may be adjusted through consultation with the client, as well. A functional assessment identifies the antecedents, behaviors and consequences (ABCs) and is achieved via careful interviewing (asking relevant people anecdotally about the ABCs), direct observation (correlational determination of the relationship between the ABCs) and functional analysis (experimental determination of the relationship between the ABCs). Do not proceed with a behavior change program until you have developed a high level of confidence in your contingency statement (aka summary statement) developed through your functional assessment. A contingency statement is the simple, jargon-free statement that identifies the behavior, what sets the occasion for it and what maintains it—that is, the antecedents, behavior and consequences. The target behavior must be operationalized (i.e., described in a manner that is directly observable and quantifiable/measurable), not vague or speculative. Reference to “dominance,” for instance, is unacceptable unless it is operationalized appropriately (in which case, the term “dominance” is no longer useful at all, and indeed is usually counterproductive and inflammatory). If emotional behaviors (e.g., anxiety or fear) are referred to, the specific behaviors that comprise the emotional response should be specified; they might include, perhaps, increased heart rate, changes in blood pressure, turbulent respiration, bowel movement, incontinence, defensive or escape/avoidance behaviors, freezing/behavioral suppression, blushing, pupil dilation or constriction, excessive or sudden high arousal and appeasement, and piloerection. Some of these

will be more easily observed and measured in applied settings, obviously. In most cases, emotional behaviors are addressed by quantifying the operants they motivate rather than measuring behaviors such as heart rate. Behavior change programming is an evidence-based endeavor, where scientific research methods are applied to describing and changing specific behaviors. As in all scientific approaches, reliable quantification of the dependent and independent variables is necessary. This requires operational definitions for problems. See the resources section at the end of this essay for books on functional assessment. Careful evidence gathering cannot be underestimated at this stage and throughout the process.

Box 2. Constructive behavior change program. In this phase of the intervention, the behavior change program is constructed, including the basic strategy and the procedures to be implemented, and the objectives for the program are established. The behavior change program is based on the contingency statement that was generated through a proper functional assessment. The contingency statement is not a broad, generalized diagnostic label, but rather an accurate, reliable hypothesis describing the specific target behavior and the independent variables influencing it. The functional assessment leads scientifically to identification of these variables, and the contingency statement sums them up concisely. Once we know the antecedents (i.e., setting events, motivating operations—including conditioned emotional responses—and discriminative stimuli) and the consequences (i.e., specific reinforcers) that are maintaining the target behavior, we are in a position to develop a strategy and intervention that will manipulate the antecedents and the consequences so that the behavior will change. Our goal is to make the problem behavior irrelevant, ineffective and inefficient (O’Neill et al., 1997). The behavior change program is not a hodge-podge of anecdotally supported intuitions and “hit or miss” “tricks of the trade” but rather an evidence-based application of strategies and procedures well supported in the scientific literature. For instance, if we hypothesize that, in a particular instance, a dog barks (or parrot

screams, or cat meows) when his or her guardian is on the phone because this behavior has historically resulted in social attention, then we can employ a constructive strategy rather than an eliminative strategy (increasing the animal's repertoire rather than decreasing it; see Delprato, 1981; Goldiamond, 2002) and construct a differential reinforcement procedure that gradually reinforces approximations of sitting quietly and extinguishes the barking (or screaming or meowing) behavior as a reasonable, minimally intrusive intervention. Where an emotional response motivates problem operants (e.g., fear responses make escape or avoidance more valuable), the problem emotional response can be changed via respondent conditioning procedures such as systematic desensitization (note that another strategy perspective is to change the operants in order to change the emotional responses). Plans should also be made for how to generalize the new behaviors in various environments. Once the systematically constructed behavior change program is implemented, the target behavior that was being tracked quantitatively through the functional assessment process continues to be tracked. Consider implementation of the behavior change program as a test of the hypothesized contingency statement.

Box 3. Reevaluate. A well-constructed and well-implemented behavior change program meant to achieve realistic goals will usually be successful, but even well-designed programs can sometimes fail to achieve success. If the quantified goal is not achieved, it is time to critically examine all of the components of the functional assessment, behavior change program and its application. Much behavior–environment interaction is complex, and there are many variables involved in effectively changing problem behaviors. This reevaluation process is not to be a cursory “technicality” in which you recognize only obvious mistakes. If everything is accurate and reasonable, then you should be achieving success (perhaps not at an acceptable rate). If you are not meeting your goals, there is a problem with what has been done so far. This is your opportunity to identify that problem and fix it.

You should have proceeded with the functional assessment to the point of being confident in the accuracy of the hypothesis it generates. Sometimes this can be achieved with interviewing and direct observation. But sometimes our confidence turns out to be misplaced. Consider the possibility that the contingency statement is inaccurate. If you did not proceed as far as you could have in the assessment, you should now go back and carry out these tasks. Ideally, you should proceed far enough in your functional assessment to avoid such mistaken confidence. For instance, if you did not perform a functional analysis (i.e., experimental testing of the causal relationship between a behavior and its antecedents and/or consequences) and relied only on the interview and direct observation data (i.e., tracking target behavior to identify correlation between it and its antecedents and consequences), you will likely want to complete the functional analysis to confirm or refute the accuracy of the contingency statement (hypothesis) experimentally (O'Neill et al., 1997, pp. 54–64). Sometimes, we use the intervention as a functional analysis test. If the tentative hypothesis is demonstrated to be incorrect, it is time to adjust and retest it. The following are some further ideas for reevaluation (but this is not an exhaustive list):

- Are the goals realistic?
- Are the procedures chosen to address the target behavior appropriate in the situation?
- Have you addressed antecedent conditions adequately? Many consultants focus on consequences and fail to appreciate the importance of antecedent conditions.
- Assuming the client is carrying out some part of the program, are they performing the procedures correctly and responding to variations appropriately?

Application-related variables include many things. This is where you are looking at all the nitty-gritty details, including examination of the following:

- deliverability of reinforcer
- contingency and contiguity of delivery

- size of approximations
- fluency of prerequisite skills
- fidelity of extinction component
- response effort and competing reinforcers
- naturalness of reinforcer
- value and magnitude of reinforcer for desirable behavior versus problem behavior.

Remember, competing reinforcers are always available. Your goal is to ensure that you are controlling the reinforcers available for each choice and that the relative value of each reinforcer is such that the learner will make the desirable choice rather than the undesirable choice.

Many variables influence the strength of conditioning and what is actually being conditioned. Identify the variables that can influence the conditioning you are working on and any other conditions that may not have been considered. Training can be complex in the real world, largely because of the dynamic nature of the environment and the variables influencing conditioning. When a well-constructed program based on an accurate contingency statement fails, this is largely where it does so. Identifying the application-related problems that are resulting in failures can be challenging. If you have achieved some success, look to why that has succeeded and other components have not for clues as to which criteria are not being adequately met. Often, video recording the behavior in its environment can help you better critique the problem and your approach. Consulting a colleague can be helpful for a fresh perspective.

Box 4. Options. If the intervention has not been sufficiently effective to this point, reconsider how diligent you were with previous steps. If you have not been sufficiently effective in your intervention and reevaluation of it, it would be tempting to increase the intrusiveness of the intervention at this stage. However, instead of resorting to this option right away, it may be better to refer to authoritative sources or consult a colleague with specific competencies that may help you avoid having to increase the intrusiveness of your program. In many

instances, this will provide you with a new perspective, possibly one that helps identify and resolve the problem. Another option is to seek supervision on the case, which has the added benefit of helping you develop your own formal competencies. This is an excellent way to meet your objectives with this intervention and also to promote your own professional development and broaden your skill sets.

If these options are unavailable or you are otherwise still not able to identify the problem, you should consider referring the case to a professional with specific competencies related to the issues involved in the case. The Association of Animal Behavior Professionals (<http://www.associationofanimalbehaviorprofessionals.com>) is a useful resource in this regard since professional members are behavior analytically oriented and specifically dedicated to least intrusive effective methods. Another option may be the International Association of Animal Behavior Consulting (<http://www.iaabc.org>), although members are not necessarily behaviorally oriented. It is not a moral failing to lack competencies in certain skill sets; recognizing and acknowledging a lacking in specific competencies is laudable.

Another option, ideally considered after reevaluation and consultation or supervision options at this stage, is to construct a slightly more intrusive intervention. For instance, if a level 1 intervention was unsuccessful, perhaps a level 2 or 3 intervention could be considered (see Table 1, below). These approaches are still relatively minimally intrusive. Interventions above a level 3 should be reserved for Box 7 options in the LIEBI algorithm.

The further along the algorithm we go, the more prominent becomes the necessity to carefully weigh likely risks and benefits of intrusive interventions. If you have diligently reevaluated the case, reevaluated it again and researched authoritative sources; if consultation, supervision or referral are ineffective or not viable options; and the intervention is still not sufficiently effective, you should explore having the client consult a veterinary behaviorist in order to consider minimally intrusive

psychopharmacological solutions (e.g., 5-HTP nutritional supplement or low-side-effect medications). As always, the intrusiveness of specific interventions considered must be compared, and the least intrusive effective ones will be preferable. Nutritional supplements and medications will rarely be the whole answer but they can contribute to achieving success; they can be the “foot in the door,” so to speak, that may help you set the occasion for success behaviorally. They change the environment within the body that sets the occasion for the behavior. The extent of intrusiveness must be weighed against the necessity of achieving the goal. Work closely with the client and their veterinarian; the veterinarian will handle the medical component and you will handle the behavioral component, and this requires collaboration.

Box 5. Is the behavior an unmanageable, unacceptable safety risk? If you have reached the stage where you cannot achieve your goals after careful reevaluation of every component of the case, colleagues and authoritative sources have not been able to help sufficiently, and you cannot refer the client to a competent professional with specific skill sets that would make success more likely, you need to consider just how important the goal is before proceeding to construct a more intrusive behavior change program. As mentioned above, this whole process is a continuous weighing of the likely benefits and risks of any given intervention component in any given context. The question at this stage is: Is the problem behavior an unmanageable and unacceptable safety risk? It is important to define our terms in this question. By *unacceptable safety risk*, we mean: is the behavior likely to cause significant harm to anyone at all, including the learner? The more likely the harm and the greater the degree of harm that is likely, the easier a “yes” answer will be. If the behavior is not particularly risky in this regard, the consultant and client should continue to attempt to find a solution in Box 4, but if this is not possible, they can make other environmental adjustments to mitigate the effects of the problem behavior and “live with it.” If the unacceptable safety risk is also unmanageable, then the problem is more dire.

Unmanageable refers to the inability to find an acceptable means of preventing the behavior itself or the resulting harm. Usually, one can adjust routines, practices or physical elements of the environment that will prevent or mitigate the behavior or resulting harm. For example, tools such as head halters or muzzles can be used.

I will present a couple of common examples. Problems raised in the literature are car chasing or digging under fences out of the yard to chase deer. Indeed, these are both high-risk behaviors. But neither is unmanageable as has been suggested. Keeping the dog indoors, or on leash when outdoors, putting up a fence or putting patio pavers along the perimeter to prevent digging under the fence are reasonable solutions that respect the animal’s dignity and provide a truly least intrusive effective solution.

The best solutions are not always learning solutions; sometimes the least intrusive approach is antecedent control measures, what many trainers refer to as management. People often make restrictive assumptions about what can and cannot be manipulated in order to prevent or mitigate the behavior. It may indeed be less expensive for someone to buy a pet containment shock collar than to have a fence erected, but this fails to respect the animal’s dignity and ignores the likely side effects of using these devices (see Polsky, 2000). It is important to weigh the alternatives. The more risky the behavior, the more intrusive may be the restrictions or management of the environment. Some dogs simply may not be allowed off leash in public or it may be necessary to not even walk the dog in close proximity to others. The dog may have to wear a muzzle. Is the solution more or less likely to be more harmful than the problem behavior? This is an important question, which illustrates the idea of balancing likely risks and benefits rather than simply invoking simplistic all-or-none solutions. The consultant must consider the welfare impact of management on the companion animal and the risk involved. Some restrictions or management solutions may be so intrusive and create such a negative impact on the animal’s welfare that the behavior must be considered as unmanageable, but this must be a carefully made decision.

Box 6. Reconsidering options. To reiterate, the further along the algorithm we go, the more prominent becomes the necessity to carefully weigh likely risks and benefits of intrusive interventions, and the more challenging the case becomes. If the problem has reached this point and the behavior is determined to be an unmanageable and unacceptable safety risk, you should explore having the client consult a veterinary behaviorist in order to consider potentially more intrusive psychopharmacological or surgical solutions. As before, these will rarely be the whole answer but they can contribute to achieving success. Sometimes, nutritional supplements, medications or even surgical interventions can make some unmanageable and unacceptable safety risk cases manageable or acceptable. The extent of intrusiveness must be weighed against the necessity of achieving the goal in the case at hand. A more intrusive solution may be justified for cases where the behavior is unmanageably and unacceptably risky, and less intrusive interventions have been exhausted. For example, separation distress is a common problem in dogs. In many cases, medications can create the biological environment that allows the animal to countercondition to the various predeparture cues involved in the distress response and habituate to being left alone. If you have reached this stage with this kind of behavior, medication such as Prozac™, Reconcile™, Elavil™ and/or 5-HTP can set the occasion for much less distressed behaviors.

In some cases, rehoming the companion animal is a realistic and safe alternative to proceeding to highly intrusive behavior change programs. Often the antecedent stimulus is simply not present outside of the current arrangement or otherwise can be avoided in another home. A common example involves dogs who exhibit aggressive behaviors toward children; moving to a home where they will have no contact with children is one available option. Rehoming can be stressful in itself, so it must be weighed against other alternatives. This is not a decision to be taken lightly, but it should be retained as an option worth discussing. In reality, this option is rarely realistic because of the risks involved and paucity of homes

available for companion animals exhibiting serious problem behaviors.

This is not to suggest that highly intrusive interventions should be avoided at all possible cost. Again, the decision is based on weighing the likely risks and benefits, all within the context of doing the least harm and respecting the animal's dignity. The decision needs to be justified. It may be justified if a sound argument can be posited that no realistic and acceptable less intrusive solutions have been effective. Again, also, we are reminded that aversiveness/intrusiveness is found on a continuum from mild to severe and it is not only an all-or-none phenomenon (as aversive versus nonaversive is). The particular intrusive intervention considered may be less intrusive than a particular management solution. Uprooting a companion animal from his or her family for rehoming, for instance, is an invasive solution. If you have not reached a level 4 intervention (see Table 1), you should consider doing so, if necessary, at this stage. The further along we get, the more complex are the decisions. Diligence at this level requires careful consideration and justification.

Box 7. Construct higher-level least intrusive effective behavior intervention. If the problem has been resistant to diligent attempts at a solution through the various means discussed and other creative resolution strategies, and it is determined to be an unmanageable and unacceptable safety risk, then constructing a more intrusive behavior change program that is less intrusive than the alternatives is justified. There are many variables to be considered, though. This stage may involve level 4 through 6 interventions (see Table 1).

First, aversive behavior change programs should only be constructed by professionals who are competent to do so and should be performed and supervised or reviewed by competent professionals, as well. Competence should not mean a cursory familiarity or self study, under most circumstances, but a true competency—one developed through appropriate consultation, formal education and/or supervision by

competent instructors and supervisors. The thing about competence is that one does not always know the full scope of what one does not know; an incompetent professional is sometimes not aware of the extent of their lacking in a particular skill set, which is why formal instruction is important. Again, although “incompetence” may have a negative connotation in common usage of the word, professionally speaking, we all have various levels of competency in various skill sets. We cannot all be maximally competent in all areas. Recognizing our lack of competence in a particular skill set is admirable, not a moral failing. If the consultant is not competent to construct and implement a highly intrusive intervention, they should refer the case to someone who is. Nevertheless, whether a referral is possible or not, an incompetent professional must not undertake the task. Supervision or peer review can help you evaluate that.

Even where the professional is competent to construct and implement a highly intrusive intervention, they should seek either formal supervision in the case or peer review. Supervision involves having a more competent (in that particular skill set) professional take responsibility for the decisions of the case and approve your actions in implementing it. Typically, you consult with your supervisor between sessions in order to review the data, what your actions have been and what you want to do next, and your supervisor helps ensure you provide the best possible service. This may be done via video conferencing, phone or even email, where feasible. This also helps you develop your competencies for future cases. Peer review (or consultation) involves having a competent colleague review, with you, your plans and the results on an ongoing basis throughout the process. They will provide a “reality check” and a critical eye to ensure that you are doing the right thing. In this relationship, you remain responsible for the case, although you take the peer review seriously. No highly intrusive intervention should proceed without supervision or peer review/consultation, or, where appropriate, ethics committee review and oversight. This

may seem restrictive, but these checks and balances help ensure that the learner is receiving the best possible service, which is good for them, us as professionals and our profession as a whole.

The criteria for effective punishment of a problem behavior (e.g., contingency, contiguity, intensity, sufficient introductory level of intensity, control of reinforcers, and manipulation of reinforcer deprivation; Chance, 2009, pp. 210–217) or negative reinforcement of a replacement behavior must be observed carefully. I will not elaborate here on the criteria, as competent professionals should be very familiar with them and it would require far more space than is available to address the topic properly here. Meeting these criteria is not always possible, and mistakes are common.

Remember, side effects are common, even in a laboratory setting where the criteria can be met to the highest degree of control possible. Nevertheless, if one has been diligent and still arrives at this level (unlikely under normal circumstances), then this level of intrusiveness may become necessary. This level represents the often-proposed scenario of having to act “to save the dog’s life.”

Once the highly intrusive intervention is carefully designed, review or supervision is in place, and all agree that the intervention is necessary, considering the behavior and goals in question, it can be implemented. Only competent professionals should carry out the program. This is not something you can generally expect a guardian to perform, except in certain situations (such as where they are carrying out only a small and relatively risk-free component of the program and they demonstrate that they can carry it out properly). The behavior must, as always, be tracked quantitatively throughout the process so that the effects of the intervention on the level and trend of the behavior can be known and success judged objectively. If the plan is designed and implemented well, the strength of the problem behavior should decline quickly to an acceptable level. Maintenance must be designed into the

plan if the goal is achieved. If the goal is not quickly achieved, move to Box 8.

Alberto and Troutman (1990, summarized in Carter and Wheeler, 2005) propose a hierarchy of intrusiveness involving four levels:

- Level 1: Differential reinforcement of alternative behavior (DRA), differential reinforcement of other behavior (DRO), differential reinforcement of low rate behavior (DRL), and differential reinforcement of incompatible behavior (DRI)
- Level 2: Extinction
- Level 3: Response cost and negative punishment
- Level 4: Aversive stimulation.

Friedman (2009), proposes an excellent hierarchy of intervention strategies, summarized as follows:

- Level 1: Addressing distance antecedents
- Level 2: Addressing immediate antecedents
- Level 3: Positive reinforcement
- Level 4: DRA
- Level 5: Negative punishment, negative reinforcement, extinction
- Level 6: Positive punishment.

I proposed a similar ranking previously (O’Heare, 2007). I will present a very similar one here as part of the LIEBI model because it is used in conjunction with the algorithm; I hope that this improves on my previous approximation. This ranking has been influenced by Dr. Friedman’s excellent work (particularly in the initial focus on antecedents) in promoting a least restrictive behavior intervention. I am also proposing a new table (Table 1) in order to include respondent-conditioning-based behavior change programs.

Table 1. Levels of Intrusiveness in Behavior Change Strategies

Level 1: Antecedent control procedures
<p>Strategy and explanation: Manipulate setting events to promote choice of desirable behaviors over problem behaviors. Address variables such as medical conditions, nutrition, mental/physical stimulation, stress-inducing environments, etc., such that problem behaviors are less likely to occur.</p> <p>Manipulate motivating operations to promote and strengthen desirable behaviors over problem behaviors. Countercondition problem emotional responses with systematic desensitization in order to make consequences for motivated operants moot.</p> <p>Manipulate discriminative stimuli by presenting ones that promote other behaviors and prevent presentation of ones that evoke the problem behavior.</p>
<p>Example: Fearful companion animal utilizing aggressive behaviors to escape the aversive stimulation is systematically desensitized to the problem antecedent, and escape/avoidance is no longer reinforcing. The aggressive behaviors become moot because the emotional response is changed. Exposure to the feared stimulus is minimized. Operant conditioning accompanies respondent conditioning procedures to promote empowerment and increase the animal's repertoire of desirable behaviors. The companion animal becomes less fearful also when an exercise program, a nutritional support plan, and general empowerment training are instated and other stressful living conditions are reduced.</p>
Level 2: Shaping and response prevention
<p>Strategy and explanation: Antecedent control and shaping with response prevention. Instate antecedent control procedures as in level 1. Gradually replace the problem behavior with a replacement behavior through positively reinforcing approximations to it in the environment in which the problem behavior occurred. Ensure success by making the choice of the desirable behavior more likely over the problem behavior.</p>
<p>Example: A dog that utilizes aggressive behaviors when exposed to novel people has approximations of prosocial behaviors positively reinforced in gradually increasing intensities of exposure to strangers (usually manipulating distance and orientation) so that the dog does not perform the aggressive behaviors. Aggressive behaviors are avoided, and the new behaviors are installed gradually by shaping and empowerment training.</p>
Level 3: Differential positive reinforcement
<p>Strategy and explanation: Antecedent control and differential positive reinforcement. Instate level 1</p>

antecedent control procedures. Positive reinforcement of desirable replacement behavior (DRI, DRO, DRA or DRL) and extinction of problem behaviors.

Example: A dog that barks for social attention has bringing a toy targeted for positive reinforcement and barking targeted for extinction. A parrot that screams for social attention has lower-volume verbal behaviors targeted for positive reinforcement and screaming targeted for extinction. Note, extinction should never be used outside of a differential reinforcement procedure.

Level 4:

Positive reinforcement and negative punishment

Strategy and explanation: Antecedent control, positive reinforcement of desirable behaviors, and negative punishment of problem behaviors. Instate level 1 antecedent control procedures. Positive reinforcement of desirable replacement behavior (DRI, DRO, DRA or DRL) and negative punishment of problem behaviors.

Example: A dog that barks excessively for social attention has sitting and a single bark targeted for positive reinforcement and barking more than once targeted for negative punishment, including perhaps a time-out protocol. A parrot that screams excessively for social attention has lower-volume verbal behaviors targeted for positive reinforcement and screaming targeted for negative punishment, including perhaps a time-out protocol, such as having people immediately leave the room.

Level 5:

Graded differential negative reinforcement

Strategy and explanation: Antecedent control and graded negative reinforcement of desirable behaviors and extinction of problem behaviors. Instate level 1 antecedent control procedures. Present the problem stimulus at increasingly intense levels of exposure in order to keep the exposure minimally aversive, and make removal of the stimulus contingent on a desirable behavior. Problem behavior is targeted for extinction (although intensity of exposure is manipulated in order to minimize these trials).

Example: A dog that utilizes aggressive behaviors in order to escape novel people has prosocial behaviors in the presence of gradually increasing intensities of exposure to the strangers reinforced with increased distance from them. The procedure is done gradually to keep the procedure minimally aversive and prevent setting the occasion for aggressive behaviors. Where aggressive behavior accidentally occurs, extinction is used.

Level 6:
Positive reinforcement and positive punishment
Strategy and explanation: Antecedent control, positive reinforcement of desirable behaviors, and positive punishment of problem behaviors. Instate level 1 antecedent control procedures. Note that positive punishment should never be instated without consideration of reinforcers involved and must meet all other criteria for effective punishment.
Example: A dog that barks excessively has delivery of a shock made contingent on barking behaviors. Alternative behaviors such as sitting quietly or fetching a toy are targeted for positive reinforcement, and the barking behaviors decrease in strength (while alternative behaviors increase in strength).

Box 8. Consider rehoming or “euthanasia”. If quick results are not achieved with the highly intrusive intervention, you need to consider the relative impacts on the dog’s welfare and whether adjustment of the program is justified or whether consideration of other options is warranted. Assuming you have worked diligently through the LIEBI model, you are left with very few realistic options. When all that is left are highly intrusive options, reconsider rehoming the dog at this point as part of weighing alternative intrusive options. When the options have been exhausted and someone’s safety is jeopardized and the risks cannot be mitigated, or the dog’s welfare is put at serious risk, then consideration of whether to have the animal painlessly killed by a veterinarian must be made. The entire LIEBI model is designed to avoid unnecessarily intrusive interventions—in particular, this ultimate one. The guardian must make any decisions regarding whether or not to have a companion animal painlessly killed by a veterinarian. The professional consultant is available for consulting on the topic in terms of interventions available to avoid it, but the decision is the guardian’s. A benefit of working diligently through such a stringent process is that you can help mitigate guilt based on failure to exhaust all possible options before resorting to this choice.

Increasing the Strength of a Desirable Behavior on Cue

Boxes A through E are dedicated to situations in which you are simply training new environment–behavior relationships—in other

words, training new behaviors but not as a replacement for any problem behaviors. This is what typically occurs in training classes or basic manners training. Common behaviors to train include “sit,” “down,” “stand,” “watch me,” “go to...,” “leave it,” “come here” (for dogs) or “step up” or “leave it” (for parrots). If the behavior is being trained in order to decrease the strength of a problem behavior, then working through the left side of the algorithm is correct procedure.

Box A. Identify target behaviors and quantifiable goals. In the case of training a new behavior, this first step involves identifying the specific target behaviors to be changed, a dimension to track quantitatively (e.g., frequency, duration, intensity) and estimating a reasonable timeframe in which to achieve the specific goals.

Box B. Construct and implement least intrusive effective training plan. Decide what procedures will be most suited to the objectives. For instance, you may elect to free shape the behavior if it is not currently in the learner’s present repertoire, or you may want to chain it if it is a complex series of behaviors, or you may want to implement a prompt-based approach (e.g., “lure and reward”). Decide upon the reinforcers you can use, how to affect the motivating operations, when you will switch from a continuous reinforcement schedule to an intermittent schedule, and what schedule you will use at what stage. Decide on how to minimize distractions and how you will work on

generalizing the behaviors and fading prompts, if used. You will of course want to remain flexible, but you should devise a specific plan of action that ensures you are meeting the criteria for effective and efficient training. Implement the plan.

Box C. Reevaluate. If you are not achieving the goals that you and your client quantified, your objective at this stage is to reexamine the plan you implemented. Why are you not meeting your goals?

- Are the goals not realistic?
- Are the reinforcers sufficiently reinforcing?
- Is there a medical problem or some other limitation on the learner that influences their capability to perform or learn the behavior?
- Should you attempt free shaping rather than prompting?
- Is backward chaining better than forward chaining for the behavior?
- Are the increments in your shaping or chaining plan too large?
- Is the dog becoming frustrated with the extinction trials?
- Does the client understand the process sufficiently?
- Is ratio strain affecting performance?
- Are the procedures being implemented with sufficient mechanical skills?
- Are you meeting contingency and contiguity requirements adequately?

You are looking for the barrier that is preventing you from achieving your goals. Adjust the plan where appropriate and implement it.

Box D. Options. If you are still not achieving success, this likely means there is a problem with your plan that you were unable to identify and rectify on your first reevaluation of the problem. Take another look at the manner in which you are not meeting the goals and how the plan may be failing to achieve them. If you find the mistake, adjust the plan and implement it. Try a different approach. Failure to meet goals is usually a failure to recognize some variable in

the learner, the environment or the application of the procedures. Find it and fix it.

If you are unable to identify the problem, consider either consulting with a colleague or check your articles and books for advice on problem solving in this area. A fresh, outside perspective can often help identify the problem or new approaches. If it is an important behavior, having a colleague observe and advise on how to meet the goals can be an excellent way to achieve success. Video recording the training can often help you critique the process and can be used to solicit advice from colleagues (with the client's informed consent).

Another option, either after consultation with a colleague or instead of it, is referring the client to a colleague highly skilled in training the behavior in question. We all have various levels of skill in various areas and, if you are unable to help the client achieve their goals, perhaps there is someone else who can. This is not a sign that you are a bad trainer, but rather a sign of professionalism—you recognize that, although you may not be able to help this particular client reach their goals, there may be another trainer who can. This also shows respect for the client and your profession as a whole. You may arrange to observe the training to help improve your own skill sets in the process. See this option as an opportunity rather than a failure of your skills.

Box E. Reconsidering options. Assuming you have diligently worked through all of the steps and are still failing to achieve the goals, the options are rapidly becoming more limited. The client may elect to live without having that behavior on cue. Perhaps they can find a different solution. They might train a less ideal, but still reasonably effective, behavior to use in its place, or they may find a management approach that minimizes the effects of not having that behavior on cue. You may wish to revisit the Box D options again if the client is persistent in achieving success.

If, because of this failure to achieve success or otherwise find a creative solution, a problem behavior develops, proceed to Box 1 and move

down the left side of the algorithm to decrease the strength of the problem behavior.

Note that there are no allowances for instating highly intrusive training plans for installing new behaviors outside of the context of addressing a problem behavior. Although it is true that some behaviors are very important and can prevent problems, minimally intrusive training plans should be available to train them. If these plans fail, other behaviors or management can be chosen. The mere possibility of a problem behavior developing at some point is not generally enough to justify highly intrusive interventions. Creativity and skillfully executed training plans should be successful. It is possible that a hypothetical scenario may be thought up (or actualized) that does justify slightly more intrusive methods but, by and large, this is an extremely rare occurrence. As they say, “give a person a hammer and everything becomes a nail.” I have found that “if you give a person a highly intrusive option, everything becomes an unmanageable, unacceptable safety risk.” Highly intrusive training methods should not generally be required for training even the most important of behaviors and should be reserved for a much more clear and present danger.

Concluding Remarks

As Friedman (2009) stated, “effectiveness is not enough.” We have an ethical obligation to provide effective and efficient interventions but also to respect the autonomy, dignity and rights of the learner and make our interventions as minimally intrusive/aversive as possible to achieve our reasonably determined behavioral goals. The LIEBI principle has been prominent in the science of applied behavior analysis for approximately 40 years in various forms and with various phraseologies (Bailey & Burch, 2005). In the field of companion animal training and behavior consulting, this principle is a more recent development thanks to such trainers as Jean Donaldson, Ian Dunbar and Karen Pryor. The LIEBI model (algorithm and levels of intrusiveness hierarchy) is proposed as a way to offer direction in meeting our professional and ethical obligations to our clients, the learner, the consultant and the profession as a whole. It focuses on a behavior analytic approach and emphasizes due professional diligence in finding the Least Intrusive Effective Behavior Intervention possible, while helping guardians train their companion animals, either proactively or reactively, to resolve problem behaviors.

Professional Resources

Websites:

<http://www.associationofanimalbehaviorprofessionals.com>
<http://www.behavior.org>
<http://www.behaviorology.org>

Glossaries:

<http://www.associationofanimalbehaviorprofessionals.com/glossary.html>
<http://www.coedu.usf.edu/abaglossary/glossarymain.asp>
<http://web.utk.edu/~wverplan/gt57/glayout.html>

Books on principles of learning and behavior analysis (general):

Chance, P. (2009). *Learning and behavior* (6th ed.). Belmont: Thomson Wadsworth.

- Cooper, J. O., Heron, T. E., & Heward, W. L. (2007). *Applied behavior analysis* (2nd ed.). Upper Saddle River: Merrill Prentice Hall.
- Pierce, W. D., & Cheney, C. D. (2008). *Behavior analysis and learning* (4th ed.). Mahwah: Psychology Press.

Books on functional assessment:

- O'Neill, R. E., Horner, R. H., Albin, R. W., Sprague, J. R., Storey, K., & Newton, J. S. (1997). *Functional assessment and program development for problem behavior: A practical handbook*. New York: Brooks/Cole Publishing Company.
- Umbreit, J., Ferro, J. B., Liaupsin, C. J., & Lane, K. L. (2007). *Functional behavioral assessment and function-based intervention: An effective, practical approach*. Upper Saddle River: Pearson Merrill Prentice Hall.

Books on behavior change programming:

- Miltenberger, R. G. (2004). *Behavior modification principles and procedures* (3rd ed.). Toronto: Thomson Wadsworth.

Books on professional ethics:

- Bailey, J. S., & Burch, M. R. (2005). *Ethics for behavior analysts: A practical guide to the Behavior Analyst Certification Board guidelines for responsible conduct*. New York: Lawrence Erlbaum Associates.

Courses with a behavioral orientation:

- Companion Animal Sciences Institute: <http://www.CASInstitute.com>
Living and Learning with Animals: <http://www.behaviorworks.org>

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Transcending Pathology: Toward a Parsimonious View of Behavior

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Modern animal behavior professionals typically view behavioral problems as deviations from normal, healthy functioning. Much of the current training for dog behavior professionals (seminars, courses, etc.) focuses first on convincing the student of an explanatory etiology for the behavior, and then moves on to the incidental goal of supplanting the behavior with treatments that assume the behavior is innate. The result is a community of dog trainers that exalts complexity while devaluing simplicity. Certain segments of the scientific community have fueled this movement toward increasingly intricate explanations through their failure to heed the principle of parsimony, which is to select the simplest explanation that will fit with the facts.

The simple fact with respect to behavior is that it is always a product of its environment. The stimulus conditions that are the most common tools in the dog trainer's tool kit are consequences, which consist of any events that occur after the performance of a behavior commences. Consequent stimulus events that are associated with an increased rate of performance are known as reinforcement. They operate in conjunction with antecedent conditions to support and maintain behavior. Antecedent stimulus conditions bear equal weight with reinforcers as controlling variables. Antecedent stimuli include the surroundings, the presence of other organisms (ranging from owners to strange dogs to squirrels in the backyard), the temperature, time of day, state of hunger, and anything else that can be detected by the sense organs. Such contingencies determine whether behavior occurs or does not occur.

Physiological events, including illness, injury, extreme temperature sensations, fatigue

and many others, are antecedent stimulus conditions. They are often considered motivating operations, meaning that they make certain outcomes for behavior more or less reinforcing. Even when disease or physiological differences are present, the *behavior* that occurs under these physiological conditions does not qualify as pathology. For example, if you come down with influenza, you may stop eating, but the anorexia is not pathological. The reduced food intake results from food being less reinforcing, or even punishing, when the flu is present. Thus anorexia in the influenza patient is not pathological, although the flu itself is. In the same sense, an individual dog may perform more aggressive behaviors when his serotonin levels are low. This does not mean that low serotonin levels caused his increased aggression. It means that the consequences of aggression are more valuable to him while his serotonin levels are low. Behavior remains under the control of antecedent and consequent environmental conditions. No matter what else is going on, manipulation of stimulus conditions can change behavior.

Behavioral problems are often attributed to physiological or psychological conditions that are either present or absent in an organism. Whether a set of conditions is considered normal or pathological often depends on a comparison with other organisms of the same species, age group and culture. Sometimes this view posits that if organism A differs from organisms B through Z, and if the difference poses any sort of challenge for the majority of organisms B–Z, organism A is given the diagnosis of a pathology. Similarly, if A starts out like B–Z but undergoes a change that results in him becoming different from the others, he is assumed to have become pathologically affected. In the

developmental and medical models, these differences are often described as if something is wrong with organism A. When A's differences do not cause any problems for B-Z or when A's daily functioning continues without limitation, he is simply described as different. "Difference" is an appropriately parsimonious description even when B-Z consider his difference a problem or when some limitation for A occurs. The goal should be to determine what constitutes effective, beneficial functioning for A, not to segregate his functioning from that of B-Z with diagnoses or judgments.

When the difference A exhibits is behavioral, A has simply been exposed to an environmental condition to which B-Z have not. The dog who spins all day in a kennel is not defective, he is simply responding to the influences of his environment. The key is to adjust environmental conditions in order to change repertoires to make them more conducive to healthful living and social success, not to diagnose behavior as pathology.

There is no doubt that a learner's biological condition can affect the occurrence, frequency and quality of her performances, but that does not make it causal. For example, such physiological conditions as developmental delays, brain injury and hormonal imbalances do not cause aggressive behavior constellations in dogs, although aggression may be performed by dogs with these conditions. If the environment does not support aggression, individuals with these conditions will not perform aggressive responses. Conversely, if the developmentally delayed, brain-injured, or hormonally imbalanced learner is already performing or begins to perform aggressive responses, changes in the environmental contingencies can be arranged to reduce or eliminate these responses, despite the coexisting conditions. Likewise, aggressive repertoires *may* occur more frequently when an individual has undergone physiological changes, but this does not mean that the change *caused* the aggression. It means that the conditions have changed and have become more supportive of aggressive behaviors for that individual. A supportive environment

must exist if the aggression or any behavioral repertoire is to occur.

Medical interventions, by their nature, address problems pathologically. Pathological views focus on the conditions and processes of disease, and start with the assumption that the organism is, for some reason, malfunctioning. In a pathological discussion of behavior, it is assumed that problem behavior is a symptom of a psychological, genetic or physiological fault in the performer. Medical interventions such as anti-anxiety medications may alter the frequencies and magnitudes of certain behaviors, but this outcome does not prove that the problem behavior is a pathology or even that medication is the best treatment. There is a tendency to assume that, because a change in behavior sometimes occurs when medication is administered, this change constitutes a valid diagnosis of a biological pathology. In discussing the effects of medications on human children with attention deficit hyperactivity disorder (ADHD), behavior analyst Dick Malott writes that, if a change in a normal pigeon's pattern of pecking a button occurred concurrently with the administration of a drug, we would not assume the etiology was biological. In other words, if the pigeon's behavior got worse when a drug was administered, no one would jump to the conclusion that the change was a result of a biological problem in the bird. We should not assume the converse, either. Malott writes, "... we should be reluctant to jump from the effects of drugs on ... repertoires to the importance of biological determinism in the acquisition of ... repertoires and values" (http://dickmalott.com/autism/autismgene_part2/).

In that vein, the fact that the administration of Prozac[®] sometimes is correlated with a change in a dog's repertoires should not convince us that the behavior problem was biological, even if the changes were reported by the dog's owner as desirable.¹ What we might, instead, say is that for some dogs fluoxetine produces a change in stimulus conditions so that different repertoires are supported.^{2,3}

Problem behavior does not constitute pathology. To assume that behavior is the result of a disease process or disorder takes us a step away from the parsimonious observation of behavior in its environment. Although changes in a dog's behavior warrant veterinary examination, there should be no preference for medical pathology-based treatments over behavioral treatments when the behavior is the only identifiable factor. If all you see is behavior, treat behavior. Collaboration between qualified behavior specialists and veterinarians would potentially provide the dog owner with the best possible outcome. Even in cases where there is a veterinary correlate for problem behavior, an early referral to a behavior specialist is recommended. No matter how a behavior gets started, it always occurs in a stimulus environment and may persist beyond the life span of any related medical condition.

Veterinary examination can rule out physical conditions, or indicate appropriate treatment. Too often, prescriptions are written in the absence of physiological correlates for problem behaviors. This practice should be questioned. No veterinarian should resist

referring clients to qualified trainers or behaviorists when a physical exam has revealed no veterinary stimulus conditions for a behavior.⁴ No behaviorist or trainer should give up and decide that, because a behavior has proven challenging, there is pathology present.

Behavior is never pathological. Behavior is always an interaction between an organism and its environment, whatever that environment may be. This parsimonious view will lead to the development of more effective treatments that are accessible to nonveterinary behavior professionals, and will enhance the work of veterinarians as well. Just because we have an arsenal of veterinary treatments does not mean that they are *always* the best way to go.

Behavior is always sensible in context, even when it consists of topographies others in the performer's community find untenable. The job of the canine behavior change professional is not to complicate matters by attempting to gain support for a diagnosis of biological pathology. It is to evaluate the environment in order to identify stimulus conditions that may, when manipulated, support more desirable behaviors, and to implement relevant procedures.

Endnotes:

1 We should also remember that owner reports are notoriously unreliable, and that extensive research has been done demonstrating the problems with such reports. I refer the reader specifically to the broad body of work by Elizabeth Loftus, PhD.

2 In human patients, verbal reports of the effects of serotonin reuptake inhibitors are used to determine the appropriateness of the drug. The effects vary dramatically from drug to drug and person to person. Such personal interviews cannot be part of a dog's treatment, and this limitation should be part of the decision-making process when deciding whether to administer antidepressant and anti-anxiety medications to nonhumans.

3 It is essential to weigh the side effects, long-term effects, risks of withdrawal, various costs of administration and other factors when making the decision to administer medication, however.

4 This calls for higher professional training standards for canine behavior professionals.

The Hide Yourself Shaping Game: A Procedure for Changing Separation Distress Behaviors in Dogs

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Separation distress involves distress-related behaviors associated with social (and sometimes place) isolation and causes significant suffering in both dogs and humans. The current recommended approach to changing separation distress in dogs is generally a comprehensive behavior change program involving systematic desensitization, often with use of psychotropic medication prescribed by a veterinarian. In some behavior change programs, the dog is trained to maintain a specific position while the human leaves the room, starting for short durations and building up to longer durations. Although this can be a useful protocol, it does not emphasize counterconditioning or empowerment as strongly as it could. The Hide Yourself Shaping Game described here is intended as an adjunct to, or component of, a comprehensive behavior change program, one that emphasizes counterconditioning, empowerment, and learned industriousness, as well as resilience to minor frustrations.

Empowerment is similar to the concept of self efficacy. It refers to the confidence an animal experiences from having control over what happens to them. *Industriousness* is a behavior analytic term, similar to the concept of creativity. Free shaping—that is, shaping without prompts—tends to promote industriousness because the experimental strategies are strengthened and generalized. Similarly, free shaping tends to promote resilience as each minor frustration challenge (extinction trial during free shaping) is overcome. It immunizes the learner against frustration if done well (if done poorly, it achieves the opposite, so great care must be taken).

The Hide Yourself Shaping Game consists of shaping hiding behaviors. It allows the trainer to achieve counterconditioning and empowerment at the same time as addressing specific behaviors that will aid in the behavior change program. In other words, it will help promote generalization because of the natural application of the behavior to the problem situation. Instead of departure eliciting panic, it will come to cue a specific behavior with a strong reinforcement history and strongly meeting the contingency criterion, the byproduct of which is counterconditioning and industriousness/resilience.

It is critical that the following procedure elicits a “joy” attitude in the dog—that is, presence of pleasure-related behaviors and absence of distress-related behaviors. With each increase in the described criteria of the Hide Yourself Shaping Game, it is critical that the dog exhibits joy and relaxation-related behaviors, and that the game remains fun for everyone throughout the process. If the dog, at any point, exhibits stress-related behaviors, the trainer will need to lower criteria by as many approximations as necessary to recover the joy-related behaviors, and resolve to work more gradually and incrementally. Once the dog exhibits joy-related behavior, the criteria can be raised again, gradually and incrementally. The most efficient way to maintain the joyful attitude is to raise criteria in tiny increments and never raise them until the joy response is stable. The most efficient way to accomplish this training is to have patience, enjoy the process and go slowly, allowing the dog rather than the trainer to set the pace.

Consultants need to advise clients that they are coaching on implementing this procedure about how important it is to proceed to the next approximation only when the dog displays the appropriate joyful attitude, and explain the concept of tiny approximations. Where clients will be trained to carry out the shaping themselves, ensure that they develop a strong repertoire of training behaviors for free shaping, including handling frustration by setting smaller increments and using a prompt where necessary. Help them construct the incremental steps in the shaping process. Avoid simply providing them with the basic principles and leaving them to it. This is ineffective supervision. Coach the clients on shaping in general and on constructing this specific set of approximations. Have them demonstrate the behaviors you coach them in, and ensure they are developing adequate competency. They should also be coached on recognizing subtle stress-related behaviors. Shaping is an advanced skill. If done well, it can achieve the benefits described above, but if done poorly it can have the opposite effect. Again, as with any procedure that you hope a client will be able to perform independently, demonstrate the requisite behaviors, have them practice and demonstrate the behaviors, adjust any mistakes, and only leave them to carry out the tasks independently once they have demonstrated competence. Furthermore, continue to monitor the data they collect on the behaviors they are training. If the client cannot independently carry out the program, the consultant will need to perform the training, at least to the point where the client can then carry on independently. As the second author always says, treat clients like dogs. That is, set them up for success and reinforce desirable approximations.

If the guardian will be leaving the dog alone during the behavior change program and distress behaviors will result, they should immediately start to ensure that the dog cannot view the guardian leaving through the departure door, in preparation for applying the training to that door. Whether this is possible or not, using a salient nonsafety cue for departures that will elicit distress is a wise idea to help protect the conditioning when the intolerable departure will not take place and training will.

Hide Yourself Shaping Game

The Goal

The goal of the Hide Yourself Shaping Game is that the distressed dog will go and hide when the owner is at the door preparing to depart. Note that you can make early predeparture cues set the occasion for the game behaviors. Doing so will require only a minor adjustment to transfer stimulus control near the end of the training process. Thus, the behavior that generally elicits the most anxiety will have become a fun game.

The Hide Yourself Shaping Game will ideally help a dog develop a strong positive reinforcement history with the specific stimuli that currently elicit distress. Current established training practices involve implementation of systematic desensitization procedures and rarely involve operant conditioning procedures. Relaxation is promoted, a hierarchy of exposure to the departure routine is constructed, and counterconditioning is achieved at each increment. Although this has been a successful approach, including an operant component can physiologically focus the learner on an actual task, keeping them “operant,” and inhibiting problem emotional responses (see Arnsten, 1998; Lindsay, 2000, p. 112). When an operant approach is implemented, it usually involves sit-and-down-stay training, which usually allows for visual perception of the departure routine, which continues to elicit anxiety and panic. It is our goal to achieve both respondent and operant conditioning at the same time and to encourage more fun in the process. Promoting joy can only help the process. Playfulness is incompatible with distress. More importantly, current protocols do not incorporate training that results in the dog offering the actual departure behavior that will be needed, making generalization to the natural environment a source of setbacks. Ultimately, the dog offering the departure behavior should come to prompt a joyful or relaxation-related emotional response. Trick training often also elicits a joyful attitude in the trainer, and this is of critical importance to promoting success within the team.

Equipment

- 1 clicker or other conditioned reinforcer
- Many different treats that the dog will like to work for
- 1 exercise pen
- 1 soft and comfortable mat for the dog
- 1 Kong®
- KongTime® Automatic Treat Dispenser, the Premier MannersMinder™ or another automatic treat-dispensing product
- Cardboard box, or other large object that obstructs the dog's view of the trainer

The Game

Go to Mat and Relax

Start by training the dog to go to a mat and lie on it in a relaxed manner. McDevitt (2007) outlines numerous games for shaping and creating a joyful mat attitude. She describes in detail how to train a dog to lie on a mat and behave relaxed. Behaviors must be monitored carefully during all training because stress-related behaviors are indications that training is progressing too quickly. Again, the most efficient way to achieve success is to go slowly so that the dog sets the pace, not the trainer or the guardian. By shaping going to a mat with a high rate and magnitude of reinforcement, the trainer is making the mat a “happy place” to be. In addition, the dog should associate the mat with relaxation. Being on to his or her mat will be reinforcing. The mat serves as a target of where the dog goes to “hide.” Furthermore, the mat will elicit calm and relaxed behavior because it has been previously associated with safety and reinforcers.

Hiding Behind Box

We start with training around a box rather than wall, entrance or hallway corner because the box is less likely to elicit problem emotional responses than an architectural feature. Once the behavior is trained with the box, it will have a strong reinforcement history and this will promote a smoother transition to architectural features in the home. Begin the hiding component of the game by reinforcing moving

toward the box, and continue the shaping process until the dog is hiding behind the box. The box object needs to be large enough for the dog to tuck behind so that he or she is unable to see the trainer. When delivering treats, toss the treats behind the box so that the dog does not have to return to you to get the treat. If the dog is particularly successful, end the session by clicking and giving the dog a stuffed Kong® to consume while he or she is behind the box. If the dog takes the toy elsewhere, you may wish to attach it to the area behind the box to ensure the dog remains there to enjoy the stuffed Kong®.

Building Duration

You will have already trained the dog to go to, lie down on and remain on the mat. The down should be a relaxed down, meaning the dog is lying either on their side or has rolled their hips so that they look comfortable and are able to hold the position comfortably for a longer time.

Once hiding behind the box is shaped, begin building duration. The behavior should now be established and brought under stimulus control with a specific cue. The consultant now builds duration into the behavior so the dog begins offering hiding for longer periods in a “ping pong” manner—that is, the duration is not always predictable. Do this by incrementally and very slightly delaying your reinforcement after you have shaped lying down and relaxing behind the box. Keep the duration variable around an incrementally increasing mean duration.

Combining Mat Training with Box Hiding

Place the mat behind the box, and shape hiding from view of the trainer by having the dog tuck himself or herself behind the box and lying down on the mat. Add duration to the behavior so that, ultimately, the dog is able to perform this behavior of hiding from view and lying relaxed on the mat for minutes at a time.

Taking it to the Door

Next, combine the foundation training with an actual door. Do this by using an interior doorway instead of a box to repeat the game. The foundation established with the box will

make working through doorway training smoother, with fewer setbacks. Remember to relax other criteria and build the behavior back up. Avoid using any door that is associated with actual departure; use a neutral door that does not elicit emotionality. Ultimately, you want to apply this training to the departure door, but it is important to work up to that gradually in order to help establish counterconditioning and a strong reinforcement history for the game. If available, a doorway without a door is ideal. A doorless room entry is least likely to elicit anxiety because it is less like the departure door stimulus package and hence less likely to have an anxiety or panic response generalized to it. Alternatively, an interior doorway that usually has the door ajar is also a good choice. Often, a good choice is a bathroom door.

Begin with the trainer and the dog together at the doorway. Shape the target behavior of the dog walking away from the doorway and hiding behind something close by. This can be a hallway corner, another doorway or a piece of furniture. The key is that they go and hide. Start with no door or with a door that is wide open. Gradually, generalize the behavior to doorways with doors and/or doorways with doors being closed; that is, the door starts open but gradually is slightly more closed with each trial. From there, work with the door closed and the hiding behavior cued once the trainer opens the door. As before, the dog's mat is located at the location where the dog is trained to go. Sessions are ended with the dog getting a stuffed Kong® to play with on the relaxation mat.

Once you have achieved this, work on building duration, again on a schedule of reinforcement that gradually increases the mean duration through repeated trials in a "ping pong" fashion, so that the exact duration is not predictable for the dog. Repeat this game with other interior doors, each time starting with a wide-open door and minimal duration, in order to promote generalization as well as empowerment and a strong reinforcement history for the game itself.

We recommend that you reinforce hiding on the other side of the door using an electronic

treat dispenser that releases treats when a remote control button is pressed. A KongTime® Automatic Treat Dispenser or other automatic treat dispenser can also be used. If you use an automatic treat dispenser, it must be placed on the far side of the mat, away from the doorway opening. Peeking and searching for the guardian must be avoided, and this will help. You can train without this device, but it becomes more challenging, particularly later in the process when departure will be included. The reinforcement needs to occur without the guardian being present. Pairing reinforcement with the guardian's presence may be counterproductive where you have the opportunity to reinforce guardian-absent behaviors. If electronic devices are not an option, simply hiding the Kong® on the relaxation mat can function as a "jackpot" for the dog for training sessions involving only one trial and will set the occasion for the dog looking for it there.

Moving it to the Departure Door

Finally, move the training procedure to the door that is used when the guardian is actually departing. With such a strong reinforcement and safety history associated with the game, distress responses to the departure door will now be far less likely. The industriousness built through free shaping will also promote resilience.

Using exercise pens, the area immediately outside the front door is secured so that the dog is unable to get loose. Move the pen so that it creates a half circle around the outside of the departure door, big enough for the dog to go and hide behind the box. Ensure there are no gaps that the dog can escape through. If necessary, use chairs or other heavy objects to block the pen from being accidentally moved by the dog. If you have a large double-door anteroom arrangement, the pen will not be necessary (as long as there is room for the trainer, the dog and the box). The doorway is fully opened at this point in the training.

The next step is particularly important for cases involving very intractable emotional responses or where the trainer is challenged by the idea of working as gradually as they have to.

If you train someone to carry out this procedure and find that they are having setbacks or are failing to move as slowly as they should, shape their compliance but also set them up for success by incorporating more intermediate steps for them to work through. Some trainers can work with few steps as long as they are particularly good at working slowly and gradually enough. Others become impatient or impulsive, and providing more increments will help ensure that these trainers move more slowly. If the problem is particularly troublesome or the trainer does not move slowly enough, this next step of working first from the outside of the departure door is important. Otherwise, you may be able to go directly to working at the departure door from the inside.

First, the behavior is trained with trainer and dog starting outside the departure door; the dog is going to hide on the mat behind the box. Then, after that behavior is shaped through to generalization and increased duration, the locations are changed; the trainer and dog start on the inside of the door, with the dog going to hide on the mat behind some architectural feature nearby that will allow for hiding (as was done with the interior doors). Remember to relax the criteria when starting the training in a new location and build them back up. The Hide Yourself Shaping Game begins again.

Next, generalize to the door at various degrees of being closed, again, a little at a time to a nearly closed position, and finally to the closed position. Again, build duration before proceeding to the final series of graded training approximations in which the door is ultimately closed after the dog hides.

Provided the dog is exhibiting no distress, the training progresses to the terminal approximation: the trainer and dog are inside the departure door with the door opened (the exercise pen outside prevents escape). The dog is trained to go hide on the mat behind the chosen architectural feature nearby that allows for hiding. This approximation, finally, closely resembles the actual departure. A strong foundation established to this point was all in preparation to ensure that such a “hot”

environment remains fun. If the dog exhibits any stress-related behaviors, go back to an approximation that was well established and build more reinforcement history for the game. The dog ideally comes to love to play the game, even at the departure door.

Again, the trainer shapes hiding and builds duration using the mat, Kong® and automatic dispenser. Ultimately, the dog should be offering the departure behavior. Now that we are approaching the departure scenario, the approximations become finer.

The Doorknob

For many dogs with separation-related distress, the guardian reaching for the doorknob and the closing of the door are key distress-eliciting stimuli. Since the doorknob and closing of the door are likely to elicit the most distress, this procedure takes the time to build a strong positive reinforcement history with the guardian reaching for the doorknob and, separately, the guardian closing the door. Now that a strong foundation has been set with the departure door, it is often a good idea to relax that criterion and work another. In this case, touching the doorknob and closing the door can be worked on with the interior doors that you spent time establishing as part of the game. The trainer can build a positive association with doorknobs and closing of doors with the interior doors and then bring that association back to the departure door. This gradual process not only establishes a strong reinforcement history, which can aid in counterconditioning, but also promotes generalization. All of these incremental steps provide the solid foundation needed to work the most challenging environment—leaving through the departure door.

The trainer now reaches for an interior doorknob that is unlikely to elicit distress from the dog if the foundation has been established well. With every reach toward the doorknob, the trainer tosses the dog a treat. Once you get to the point where you can touch the doorknob, you have the discriminative stimulus you will want to attach to the hiding behavior. Now it is time to transfer stimulus control from the verbal cue for the game to the physical touch of the

doorknob. Touching the doorknob becomes the cue to go hide on the mat behind the chosen wall, door or piece of furniture. In order to transfer stimulus control, the trainer presents the new stimulus (touching the doorknob), immediately followed by the old stimulus (the verbal cue), which is of course followed by the behavior and reinforcement. After repeated trials, stimulus control should be transferred, and the old cue may be discontinued.

Perform the doorknob-cued game with other doorways in the house to promote generalization and, again, build duration. As the training nears the final stages, it is particularly important that the dog continue to enjoy the game, as the most challenging part is yet to come.

Closing the Door

Finally, repeat the game, but now actually step out and close the door while the dog hides. Do this very gradually, one inch at a time. Do it first on some interior doors and then on the departure door. Be sure to coach the guardian that, when working with anxiety and panic, the fastest way to get something done is to do it the slowest way; never move to the next step until the one before is solid. It is tempting to move quickly, but this will cause more problems than it solves. Drive home for guardians that this is the most common make-or-break detail in behavior change programs for problematic emotional responses such as fear, anxiety or panic. If they move the door only a tiny bit at a time, it is likely that they will progress smoothly and with fewer setbacks. If they move the door too quickly, they will increase the dog's stress and very likely need to move back and redo several steps to repair the damage. Setbacks happen, but each one is an indication that not enough time and care were taken to establish a reliable foundation of conditioning.

Ultimately, when the guardian touches the doorknob, the dog should go hide on the mat and the person should be able to step out and close the door and maintain duration. If this elicits emotionality, then the foundation was not solid enough. The question is not whether to reinforce

this behavior by coming back in; the right question is how to go about ensuring that the problem behavior does not occur. The answer is graded exposure and a strong reinforcement history for some other replacement behavior.

After training has been complete, discrimination training will establish touching the departure door as the cue for the behavior and no longer the touching of other interior doors. Remember to refresh the conditioning frequently and ensure that there are frequent opportunities to play the Hide Yourself Shaping Game because the extinction trials associated with discrimination training can be frustrating otherwise.

Conclusion

The central purpose of this article is to propose a procedure that will achieve counterconditioning and differential reinforcement of incompatible behaviors, and promote industriousness, empowerment and generalization to the departure of family members in as minimally intrusive a manner as possible. Other procedures achieve some of these goals, but the Hide Yourself Shaping Game is constructed to achieve all of them. The use of play in separation distress training is underappreciated and underutilized. Beyond its counterconditioning application, it acts well as a metric for anxiety and panic because a dog experiencing problematic emotional responses will not be able to play appropriately. Often, procedures are carried out to the letter except that the trainer is tense and the process is too much like a chore. The behavior change program, like all training experiences, should be fun for everyone. Think of it like a game. Just because you are working to resolve problematic emotional responses does not mean that training cannot be fun; in fact, it means it should be fun. Playful and relaxed emotions are incompatible with separation distress. As a component of a comprehensive behavior change program involving antecedent control procedures, this game can help build empowerment and independence in dogs, promoting a smoother behavior change process.

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Behavior Fundamentals: Filling the Behavior-Change Toolbox

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Introduction

Applied behavior analysis (ABA) offers a practical model of behavioral support for veterinarians to help clients prevent and resolve behavior problems with their pets. This model divides behavior problems into two general categories: not enough of the right behavior and too much of the wrong behavior. Depending on which of the two problems we face, our goal will be to increase some behaviors and decrease others. Most often, we do both. Understanding the functional relations between behavior and environmental events is key to accomplishing these goals. Behavior is never independent of conditions, and, in the captive environment where we provide so many of the conditions, this is indeed good news.

Fortunately, nowadays there are many excellent, in-depth resources on science-based strategies for changing behavior effectively and humanely (for example, see www.behavior.org and www.goodbirdinc.com). The purpose of this paper is to highlight some of the pros and cons of several ABA strategies to sharpen the tools in your behavior-change toolbox.

Changing Behavior with Antecedent Strategies

Antecedents are the stimuli, events and conditions that precede a behavior and set the occasion for the behavior to occur. Antecedents don't cause the behavior; rather, they signal the contingency ahead: when antecedent A is present, if you do behavior B, then consequence C will follow. These are the ABCs of behavior. Antecedents are the signposts that give order to

our behavior, in the sense that they tell us what to do when. There are three types of antecedents: cues, setting events, and motivating operations. Each type of antecedent can be an important tool for changing problem behavior.

Add or Remove the Cue

When clients report a behavior problem, ask: what cues the behavior?

A stimulus becomes a cue (discriminative stimulus) for a particular behavior if it is repeatedly present when the behavior is reinforced. A ringing telephone can become a cue for raucous vocalizations if raucous vocalizations result in petting when the phone rings. An offered hand can become a cue for lunging if lunging removes the hand when the hand is offered. The strength of a stimulus to cue a particular behavior is related to the strength of the reinforcer that follows the behavior. To build strong cues, deliver strong reinforcers in the presence of the cues.

Removing the stimulus that cues a problem behavior is one way to reduce it. For example, buttons and jewelry often cue chewing because chewing results in social and sensory reinforcers in the presence of those buttons and jewelry. By removing the cues (wearing T-shirts and removing jewelry), chewing necessarily decreases. Adding a cue for an alternative behavior is another way to reduce the frequency of a problem behavior. For example, opening the food door may cue lunging because lunging has been reinforced with the delivery of food.

Teaching a bird to station on a distant perch when cued prevents lunging.

Increase or Decrease Effort with Setting Events

When clients report a problem behavior, ask: how can the setting be changed to make the right behavior easier than the wrong behavior?

Setting events are the context, conditions or situational influences that affect behavior. For example, we can make coming out of the cage easier by selecting cages with large doors, which may ultimately reduce biting. We can make chewing the window-frame harder by locating the play-tree in the middle of the room. The relations between setting events and problem behavior should be considered carefully, as the setting is often one of the easiest things to change.

Strengthen or Weaken Motivation

When clients report a problem behavior, ask: what's the motivation? i.e., what consequence does the behavior produce?

Motivating operations (also known as establishing operations) temporarily alter the effectiveness of consequences. For example, a few sunflower seeds may be a highly motivating consequence to a bird that rarely has access to them but not motivating at all to a bird that has unlimited access to them every day. A bird may be more motivated to stay on a play gym after some quality time with a favorite caregiver; chasing the family cat may be less reinforcing after an energetic training session; stepping onto a hand may be more reinforcing when the bird is on the floor.

Antecedent behavior-change strategies are often preventative solutions rather than learning solutions. As a result, antecedent strategies are often the most positive, least intrusive, effective behavior-change procedures.

Decreasing Behavior with Consequences

Why Did He Do That?

When clients report a problem behavior, ask: what purpose does it serve the parrot? i.e., what does the parrot get, or get away from, by doing the behavior?

Reinforcement is the process by which behavior is maintained and increased. It is a natural process that, like gravity, is in effect whether we realize it or not. Behavior—even problem behavior—is repeated because it results in reinforcement. Clients often look in the wrong place, inside the bird, for answers to why animals do what they do (e.g., birds scream because they are hormonal, dominant, or neurotic). By focusing on the functional relations between observable behavior and consequences, clients consider causes for behavior they can do something about, namely the consequences and conditions they provide.

Extinction

Once the reinforcer for a problem behavior is identified from a functional assessment, the reinforcer can be permanently withheld to reduce the behavior. When the contingency between a behavior and its consequence (if B, then C) is broken, the behavior serves no function and eventually weakens or dies out. This process is called extinction. There are really very few problem behaviors that are well suited to extinction due to the problems cited below. Extinction is most effective the very first time a problem behavior occurs, i.e., don't give the behavior a function in the first place.

- Extinction can be a slow process, especially with behaviors with an intermittent reinforcement history, which is usually the case with problem behaviors.
- There is often an intolerably sharp increase in the frequency and intensity of the problem behavior (extinction burst) before it eventually decreases, which may result in clients reinforcing even worse behavior.
- Extinction can result in frustration-elicited aggression.

- Uncontrolled or inadvertent reinforcement can undermine the procedure (bootleg reinforcement).
- Behaviors that were previously extinguished in the past can resurge when a new extinction procedure is started.
- Over time, the problem behavior can recover and the extinction procedure will need to be implemented again.
- Other animals may imitate the problem behavior.
- Additional considerations before using punishment:
 - 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 effective.

Punishment

Punishment is the process by which consequences decrease and suppress behavior. Behavior can be punished by contingently adding an aversive stimulus, called positive punishment (or “discipline,” in casual language), or by contingently removing positive reinforcers, called negative punishment (“fines” or “penalties,” in casual language). For example, when a client passes through a doorway with her bird on her hand (A), if the parrot bites (B), then the client shakes her hand sharply (C). In this scenario, biting will likely decrease (punishment) given the addition (positive) of the sharp shake of the hand. Alternatively, when a client installs a seed cup through a cage door (A), if the parrot bites the cage bars (B), then the client temporarily removes the seed cup (C). Biting cage bars will likely decrease (punishment), given the removal (negative) of the seed cup, a reinforcer.

Decades of scientific studies demonstrate the problems with positive punishment listed below. As a result of these problems, and the efficacy with which alternative strategies can be used, positive punishment should only be used to solve behavior problems when more positive, less intrusive procedures have failed (indeed, an uncommon occurrence among experienced practitioners).

- Punishment is associated with four detrimental side effects:
 - increased aggression
 - generalized fear
 - apathy
 - escape–avoidance behaviors.

Time Out from Positive Reinforcement

Time out from positive reinforcement (“time out”) is a negative punishment procedure that can effectively reduce problem behavior with fewer detriments than positive punishment. Time out is the temporary removal (or reduction) of access to positive reinforcers contingent on a problem behavior. The example of negative punishment above is a time out procedure: when a client installs a seed cup through a cage door (A), if the parrot bites the cage bars (B), then the client temporarily removes the seed cup (C). Biting cage bars will likely decrease due to the process of negative punishment in which the seed cup, a positive reinforcer, was removed. Time out can be a relatively unintrusive behavior-change procedure if it is implemented correctly. It should be implemented consistently, with close contiguity (immediacy) between the behavior and the consequence; it should be short (only a few seconds is usually effective with parrots); the animal should be quickly brought back into the situation to do it again better and earn positive reinforcement; and the client should let the procedure do the job (no emotional responses).

Increasing Behavior with Consequences

Without question, the two sharpest behavior-change tools are variations of differential reinforcement. Differential reinforcement is the process of reinforcing one class of behaviors and not others.

Differential reinforcement of alternative behavior is used to replace problem behavior with a more appropriate behavior, and differential reinforcement of successive approximations is used to teach new skills. Both procedures avoid the problems and side effects of positive punishment and result in high rates of positive reinforcement that is vital to behavioral health. This is why both procedures are close to the top of the ethical hierarchy of behavior-change strategies.

Differential Reinforcement of Alternative Behavior

When clients report a behavior problem, ask: what behavior does your parrot already know that you would like it to do instead?

With differential reinforcement of alternative behavior (DRA), a desirable replacement behavior is reinforced (increased), while the problem behavior is extinguished (not reinforced). For example, screaming for attention can be replaced with chewing wood toys for attention. To use DRA, a functional assessment is necessary to identify the reinforcer that has been maintaining the problem behavior in the past, in order to withhold it. There are three things to consider when selecting an alternative behavior. First, although the behavior targeted for reduction is a problem to people, it serves a legitimate function for the parrot or the parrot would not continue to exhibit the behavior. The function is either to gain something of value, e.g., screaming to gain attention (positive reinforcement), or to remove something aversive, e.g., lunging to remove intruding hands (negative reinforcement). An alternative or incompatible behavior should be selected that replaces the function served by the problem behavior but in a more appropriate way. If the alternative behavior is incompatible with the problem behavior (i.e., if both behaviors

can't physically be performed at the same time), the behavior-change program can proceed more quickly. This variation of DRA is called differential reinforcement of an incompatible behavior, DRI. For example, talking is incompatible with screaming, and standing on a far perch is incompatible with lunging at the feed door.

Second, the alternative behavior should produce even more reinforcement than the problem behavior in order to successfully compete with and replace it. According to the principle called the matching law, "... the distribution of behavior between alternative sources of reinforcement is equal to the distribution of reinforcement for these alternatives" (Pierce & Cheney, 2004). Thus, given a choice between two alternative behaviors, animals tend to exhibit the behavior that results in the greater reinforcement. The matching law is itself a powerful tool for managing behavior. For example, if staying on a perch produces double the reinforcement as flying off, birds tend to stay on the perch.

Third, the alternative behavior should be one the bird already knows how to do. During extinction of the problem behavior, a well-established alternative behavior is more likely to be performed than one that is newly acquired. When alternative behaviors are strengthened and maintained, differential reinforcement can provide long-lasting results. As this method relies on positive reinforcement to reduce problem behaviors by teaching birds what to do, it offers a positive, constructive, and practical approach to managing parrots in captivity that meets a high ethical standard.

Shaping

When clients report a behavior problem, ask: what skill does your parrot need to learn?

Differential reinforcement of successive approximations, also known as shaping, is another DR procedure. Shaping is used to teach new behaviors by the process of successively reinforcing subtle variations in responses (approximations) along a continuum that leads to the final behavior.

Shaping starts by reinforcing the closest approximation the animal already does. Next, an even closer approximation is reinforced, at which time reinforcement for the first approximation is withheld. Once the second approximation is performed without hesitation, an even closer approximation is reinforced while withholding reinforcement for all previous approximations. In this way, the criterion for reinforcement is gradually shifted incrementally closer and closer to the target behavior. Finally, every instance of the target behavior is reinforced. For example, to teach a parrot to play with a toy, the following approximations can be reinforced in turn: looking at toy, leaning toward toy, moving a foot in the direction of toy, taking one step toward toy, taking several steps to arrive beside toy, touching toy with beak, touching toy with foot, holding toy with foot while manipulating it in beak, and longer durations of toy play. If the learner experiences difficulty at any approximation, the teacher can back up and repeat the previous successful step, or reinforce even smaller approximations. Ultimately, it is the learner who determines the pace, number of repetitions, and size of the approximations in a shaping procedure.

Implementing a shaping procedure requires keen observation of the subtle, natural variation in the way behaviors are repeatedly performed. For example, each time a parrot lifts its foot, it is naturally done differently from the last time (left or right, high or low, fast or slow, with toe movement or without, etc.). In daily life, these variations are unimportant and simply classified as one behavior, or operant class, called “lifting a foot.” However, this subtle variation in foot lifting is exactly what allows us to shape new behaviors such as offering a steady foot for nail trims.

With shaping, we can theoretically teach any behavior within the biological constraints of the learner. Husbandry, medical and enrichment behaviors can be shaped to reduce stress and increase physical and mental stimulation. Birds can learn such behaviors as going in and out of crates, staying calm wrapped in towels, flying to designated perches, and playing basketball. Shaping can also be used to change different dimensions of existing behaviors such as duration, rate, intensity, topography, and latency (response time).

A Final Word about Gamblers

One mystery that often surrounds problem behavior is its very persistence. Clients may have a litany of failed behavior-change programs by the time they turn to you for help. As they wade through the personal recipes of one Internet charlatan after another, clients don't realize that, with each failed attempt at behavior change, the window of opportunity closes a little bit more because the problem behavior is intermittently reinforced. Intermittent schedules of reinforcement build persistent gamblers, willing to behave again and again and again, without reinforcement, for that one jackpot that inevitably arrives. There should be nothing casual about intervening on an animal's functional “misbehavior.” Each intervention should start with a careful functional assessment, and the intervention should be designed to meet the needs of the bird using the most positive, least intrusive methods. The plan should also be feasible for the client to implement. The greater our knowledge of the scientific principles and procedures of learning and behavior, the more effectively we will meet these goals.

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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;">Level 1</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;">Level 2</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;">Level 3</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;">Level 4</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;">Level 5 (no sequential order of intrusiveness intended)</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;">Level 6</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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Argumentative, Critical or Just Plain Impossible!

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Many authors have written about people who are argumentative, critical or simply impossible. These people will always challenge what is said or what is done. Christiansen, Cochran, and Corkery (2000, p.30) use the descriptive terms “Sherman Tank” or an “Exploder” to categorise these people. Brinkman and Kirschner (2002, p.4, p.5) describe the “Grenade” or the “Sniper,” while Wilde (2003, p.49, p.52, p.79) talks about “Angry Agnes,” “Know-It-All Ned” and “Argumentative Al.” Just as labelling a dog “dominant” with all of its implications can be the cause of relationship problems between dog and guardian, so too can labelling people inhibit one’s interactions with them. Recognising critical, argumentative or impossible people and knowing how to react and respond is more important than tagging them. After all, a “difficult” person may just be having a bad day and not be a truly critical, argumentative or impossible person at all, despite the outward appearance (Wilde, 2003, p.47).

Why are People Critical, Argumentative or Impossible?

Linaman (n.d.) says that, whether consciously or unconsciously, we critique things going on around us every day. The problem, he says, is that some people “...verbalize the thoughts many of us have learned to keep to ourselves” (Linaman, n.d.). Just as happy people feel better being around like souls, so too do difficult people. Hence it is important that we ensure that any “difficult” traits that we have are under control before attempting to contend with someone who wishes to be critical, argumentative, or even impossible, with us (Linaman, n.d.).

The reasons people are difficult are many and varied. Brinkman and Kirschner (2002, p.80) suggest that these behaviours can be caused by anger, holding a grudge, a wish to undermine or even a cry for attention. Linaman (n.d.) suggests that “...when things don’t go our way or we’re in a bad mood, it is easy to become critical.” Some people attack an individual because they see that person as part of a greater problem (Brinkman & Kirschner, 2002, p.68). Others who feel thwarted or threatened can suffer stress, with which they do not cope. One way of releasing that stress is to intimidate, in order to gain more control (Christiansen et al., 2000, p.30). Linaman (n.d.) suggests that some people are motivated to criticise because they have been criticised themselves and do not have the sense of security and “healthy identity” that can come from a positive environment. “Critics are often motivated by the need to feel better about themselves by putting other people down” (Linaman, n.d.). Whatever the cause of a difficult nature, if faced with this type of person either in class or in a private training session, trainers have several things to consider.

Managing Critical Clients

If criticism happens during a private consultation, each attack can be addressed as necessary, provided that this can be done privately. In a class situation, it may be necessary to ensure that you speak quietly to the critical person and suggest that a chat after class to discuss the problems would be appropriate. This acknowledges the critic’s point but allows for continuation of the class. Some points to keep in mind while addressing an issue with a critical person are as follows:

- Although one may not want to hear what the critical person is saying, it should be remembered that there could be valuable information held within that attack (Linaman, n.d.). By listening to the client, you acknowledge that they have a complaint (real or imagined) and/or a point of view. One should not become defensive by countering point for point what is being said by the critic. Neither should one become argumentative or try to cut the critic down to size (Christiansen et al., 2000, p. 33; Wilde, 2003, p. 46). Try not to reinforce the criticism with defensiveness. Use it to your advantage by hearing the meaning behind the abrasiveness. It may be justified! Being friendly, positive and open to discussion will help to disarm the critic (Christiansen et al., 2000, p. 33; Wilde, 2003, p. 46). However, if something is said that is non-negotiable or offensive beyond toleration, this should be pointed out clearly and, if need be, the trainer/client relationship must end (Wilde, 2003, p. 80). Critical behaviour is encouraged if the person criticised reacts with anger or hurt, or is intimidated. Triggering these kinds of emotions strengthens the critic's motivation. A critic is more likely to move on to another target if you do not overreact (Linaman, n.d.).
- In between the mild criticism that you are able to extinguish and the intolerable that you terminate, the middle-level criticism needs to be stopped if it is nonconstructive. These critics must be made aware that their criticism is unacceptable and that there will be consequences for recurrences of this behaviour (J. O'Heare, personal communication, 2008).
- A trainer needs to be able to work comfortably with clients. If pushed hard, usually it is necessary to confront the critic (not in public, but at an opportune time where one's discussion cannot be overheard), to let the client know how you feel about the criticism. This may not lead to a change in the critical client's approach but will decrease the chance of one feeling bitter about what has been said and decrease the chance of one saying something that may later be regretted (Linaman, n.d.)
- Allowing a critic to spontaneously wind down after voicing an opinion fails to reinforce the behaviour (Christiansen et al., 2000, p. 33). However, should the criticism continue, an interruption may be necessary, followed by an invitation either to move to a more private setting or to arrange a time for continuing the discussion (Christiansen et al., 2000, p. 33).
- Limiting the amount of time spent with a critic can be difficult in a client/trainer situation. However, pointing out to the critic that "...your level of interaction with them will be based, in part, on their willingness to communicate with you in a constructive and appropriate manner" (Linaman, n.d.) may be in the better interest of both parties.
- Demonstration of care and concern, or a sincere, timely and heartfelt "congratulations" can boost the emotional wellbeing of the critical person. People who feel good about themselves are less likely to want to criticise (Linaman, n.d.). As has been said by Wilde (2003, p. 46) and O'Heare (personal communication, 2008), treating clients like dogs (i.e., by reinforcing desired behaviour and ignoring poor behaviour) can culminate in better behaviour, not only for dogs but also for the critical guardian. If true, a sincerely worded statement such as "I really take seriously what you have to say and I would like to work with you on this" can show the critic that you are prepared to listen and can disarm the anger some critical people feel. In other words, meet abrasion with empathy.
- Critical people are often "fact challenged." If the criticism has little or no basis in fact, don't take it as a personal slight. Move on ("How to Deal," n.d.) or, if possible, try to educate the client. However, what is sheer folly should not be treated as a valid argument (J. O'Heare, personal communication, 2008).
- It is unrealistic to expect the critical client to change overnight. It should also be remembered that, particularly under stress, the critical client may slip back into old

habits. By maintaining realistic expectations, the trainer can better tolerate and assist the critic (Linaman, n.d.).

Managing Argumentative Clients

Many of the points listed above are also relevant to the argumentative client (and vice versa). However, this type of client requires some further thought.

- Most important of all, don't argue back. It is impossible to have a one-sided argument. Be a good listener, and let the client feel free to speak. At a more appropriate time, the story can be set straight (Wilde, 2003, p. 45).
- Alternatively, tell the client that you respect the offered point of view, that you disagree, that you don't like to argue, but that you would be delighted to discuss the point at issue at the end of class or at an alternative time (Hogan, n.d.).
- Argumentative clients often speak rapidly, in raised tones and at a higher pitch than normal. Speaking slowly, and maintaining your normal pitch and speed of speech can have a calming effect on others (Wilde, 2003, p. 45).
- Be aware of your body language and that of the argumentative client. If one is trying to maintain one's cool and appear to be coping, while at the same time taking backward steps, the argumentative client will have won the day. However, if you "...wear your good attitude like armor" (Crowe, cited in Wilde, 2003, p. 46), a positive demeanor will be maintained.
- When a situation arises where the argumentative client is not argumentative, reward that behaviour with a kind word or a compliment to the client's dog. In other words, reinforce good behaviour (Wilde, 2003, p. 46).
- Wilde (2003, p. 47) suggests that if you have difficulty handling a situation, you should imagine you are a person you know who would be able to handle the situation really well and then handle the situation as if you were that person. It is a methodology that could work, but could also backfire if you lost confidence part-way through.

- Maintaining one's empathy with clients, despite having to face some difficult people, will enable the trainer to continue to help dogs and their guardians as well as helping the trainer to grow as a person (Wilde, 2003, p. 48).
- It is not the job of the trainer to try to change the client's argumentative behaviour (only the behaviour of the dog). By failing to argue with a client, the trainer may, however, influence the client to be a little better behaved (Wilde, 2003, p. 44). The people in our environment influence us. If we are given understanding, we tend to give understanding in return. It may not always work, but it is possible that with this attitude the trainer will be able to reach the argumentative client ("How to Deal," n.d.).
- If a client feels that the trainer is argumentative, a useful question for the trainer to ask is "How can I present counter examples and other points of view to you so that you are not offended and your feelings are not hurt?" (Hogan, n.d.)
- If argument turns to abuse, a trainer is not obliged to take that abuse. It would be better to terminate the relationship with the client and to suggest that the client may be better off working with a trainer whose personality may be more suitable to that client (Wilde, 2003, p. 48).
- If a trainer argues with several clients, introspection may be called for on the part of the trainer. It may be that the argumentative communicator is the trainer (Hogan, n.d.). If this is the case, it is advisable to "...determine why you need to be 'right' or make someone else 'wrong' in heated communication" (Hogan, n.d.) and then to "...reconsider your approach to communication so that you are perceived as less abrasive" (Hogan, n.d.).

What About the Purely Impossible?

Most clients are sane, rational people who do not go out of their way to be impossible. In these circumstances, resolution of any conflict can usually be achieved mutually. Some clients make issues that are challenging, time

consuming and at times annoying and complicated. However, with most people, there is usually enough give and take to achieve common ground and resolution of conflict (Shapiro, Jankowski, & Dale, 2005).

Occasionally, there is a client who lacks the social graces of nicety. This is the client who seems not to care what others think—the client who is not reasonable or rational. This is the client who is purely impossible. This client make you want to “...run for cover, close your eyes and wait until it’s over” (Shapiro et al., 2005). We can make choices about how to deal with the impossible client. Shapiro et al. (2005) entertainingly suggest running up the white flag of surrender or running for cover as possible solutions. They also suggest that, in choosing to turn the other cheek, it may well “get clobbered.” Becoming more irrational, nasty and difficult than the “impossible” you are facing are also options, but these are options best avoided (Shapiro et al., 2005).

Managing Impossible People

Tempting though it may be to walk away from the impossible person, there are times when, as trainers, we have limited choice and must work with them—at least initially. As an employee or as a business owner, we are under an obligation to help those from whom we have taken money for service or, in a voluntary capacity, we have agreed to help.

The following may assist when working with an impossible client:

- Recognise that there are impossible people in this world. They may not be impossible to others, but there is something that makes a certain person impossible for you. Learn to acknowledge this and, after appropriate attempts at resolution, walk away with dignity (“How to Deal,” n.d.).
- Accept that the impossible person is this way because of upbringing, environment, experiences or any combination of these things. It is not your fault (“How to Deal,” n.d.).

- Shapiro et al. (2005) suggest that “...you should neutralize your emotions.” They claim that, if one is emotional, one’s behaviour is less rational than usual. It is understandable then that, if one’s emotions are in check, the ability to reason will greatly assist resolution of the problem. Staying calm can diffuse the impossible person as there will be nobody for their venom to strike. Staying calm prevents you from sinking to the level of the impossible person (“How to Deal,” n.d.).
- A culture of blame can exist around impossible people. The impossible person may blame you for everything that goes wrong. Do not wear that blame unless you are really responsible (“How to Deal,” n.d.). If the impossible person is “fact challenged,” do not defend yourself vocally to this person as it may provoke another abusive tirade. Unlike the purely argumentative, the impossible person is unlikely to listen to any attempt to educate. (“How to Deal,” n.d.).
- Impossible people are so called because “...you cannot beat these kinds of people; they’re called impossible for a reason” (“How to Deal,” n.d.). Nothing you can say or do will be of any consequence to them; you will not win; nothing will be good enough, so protect your self worth by terminating the agreement with the client (“How to Deal,” n.d.).
- Manage the situation until such time as you can terminate it. Silence is a good management tool under these circumstances, until you are able to unemotionally end the relationship (“How to Deal,” n.d.).
- Be a “possible” person. Use “...tolerance, patience, humility and even some kindness (as difficult as that may be)—because these are all the things that the impossible person is not...” (“How to Deal,” n.d.). Leading by example may help alter the impossible.

Summary

Many of the points above are common to the management of argumentative, critical and/or impossible people. However, care must be taken to ensure that each situation is taken on its own

set of circumstances and that the points applied to that situation are appropriate to that situation. Generalising approaches to critical, argumentative or impossible clients aids in the

knowledge of how to handle these people, but the skill in successful relationships with these people is in the application of the appropriate approach(es) taken with the individual client.

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Limitations of Prompt-Based Training

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The introduction of “lure and reward” training, pioneered by Dr. Ian Dunbar, was a major turning point in dog training, and marked the beginning of a new era—positive-reinforcement-based training. It became clear, early on, that the prompt—an antecedent stimulus that generates target behaviors in the presence of what we want to become the discriminative stimulus (S^D) for the behavior (Miltenberger, 2004, p. 198)—became part of the S^D unless faded, something many trainers failed to do. This has become a criticism of positive-reinforcement-based training and, specifically, training that utilizes prompts such as food lures. I will identify and explain the most prominent limitations of prompt-based training (e.g., “lure and reward training”), and emphasize the importance of fading the prompt early in the training process. Prompt-based training produces quicker results, but if the prompt is not faded early in the process, it will become a strong component of the discriminative stimulus package and interfere with the transfer of stimulus control to the ultimate S^D . Furthermore, the presentation of food as part of the antecedent package may also act as a consequence, thereby reinforcing behaviors that were performed immediately before it was presented. For example, if the dog is cued to sit and remains standing, repeating the

cue while presenting food may reinforce standing, thereby convoluting the conditioning and reducing the efficiency of training. I will elaborate on these processes below.

Dogs learn through respondent conditioning (a process whereby a neutral stimulus becomes a conditioned stimulus by being made contiguous with and contingent on an unconditioned stimulus, so that the subsequent elicited unconditioned response becomes a conditioned response), and operant conditioning (a process that involves changes in the frequency and/or strength of operant behaviors due to consequence history) (O’Heare, 2008). Although these types of conditioning are distinct, they occur simultaneously and continuously, for the dog is always learning new behavior–environment relationships. For example, food can act as both an unconditioned stimulus and an unconditioned reinforcer. It elicits respondents such as salivation and certain emotional responses, and reinforces operants such as sitting. The sight of food may become a conditioned reinforcer, as mentioned above. I will focus here mainly on the effect of food lures on operant behaviors.

Operants are preceded by antecedent stimuli and followed by consequences. For example:



Figure 1. Antecedent–behavior–consequence sequence for “sit.”

Operant behavior is maintained or extinguished by its history of reinforcement or lack thereof; it is the result of its historic consequences. The S^D indicates that a particular contingency is available (O’Heare, 2008). Training involves manipulating the antecedents and/or consequences in order to change behavior.

Our power, as dog trainers, lies in arranging the environment and arranging certain contingencies that set the occasion for desirable behaviors. We manage the antecedent and consequence stimuli to achieve our behavioral objectives. It is important to arrange the relationship between the antecedents, behaviors and consequences as efficiently as possible in order to obtain maximal benefits from our training efforts. Establishing an S^D by way of prompting is an important component of our training efficiency (colloquially, a useful tool in our training tool kit).

Prompts help produce an instance of the correct behavior in the presence of the S^D so that it can be reinforced. Prompting is useful, especially if the selected behavior is not part of the dog’s current behavioral repertoire (Donaldson, 1996, p. 142), or if the dog doesn’t emit the form of the behavior that we want to reinforce. For example, dogs perform sitting behavior regularly, but they might not sit close to and parallel with our left leg, facing the same direction that we are. In this example, because the particular behavior does not occur frequently enough, we cannot use capturing (a process whereby the trainer waits for the dog to emit the target behavior in order to reinforce it). We can free shape (shape without prompting) it, but prompting will generate the behavior more quickly—using a food lure to prompt a sit that is

parallel with our left leg is much faster than free shaping it.

The most commonly used prompts are divided into five categories: verbal/auditory, physical/tactile, modeling, visual/gestural (Miltenberger, 2004, p.199), and olfactory. Auditory prompts involve using sound to encourage the dog to perform the behavior. One example of an auditory prompt is to use squeaking and high-pitched sounds to encourage a dog to approach us. Physical or tactile prompts involve touching the dog in order to generate the behavior. One example is pressing down on the hindquarters to generate a sit. Modeling involves performing the behavior and expecting the dog to perform it afterwards, by mimicry—the trainer demonstrates the behavior, and the dog is expected to imitate it. Modeling is rarely used in animal training, though. Visual prompts involve presenting a stimulus that the dog tracks visually that, in the process, encourages the behavior to take place—for example, a food treat being moved such that the dog follows it and performs the behavior. Food can also be considered an olfactory prompt—the dog likely sees and smells the treat, both of which contribute to the targeting. Using food as a visual/olfactory prompt is commonly referred to as luring.

Prompt-based training generates behavior quickly. In the case of lure and reward training (a type of prompt-based training), the food is used both as a prompt and a reinforcer. The method is not without its limitations, though, especially because food is a primary reinforcer. The prompt-based training or “lure and reward” sequence looks like:

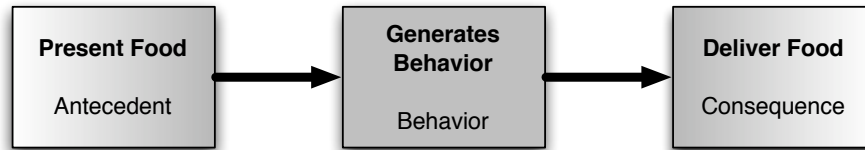


Figure 2. Prompt-based training sequence involving food as part of antecedent and consequence stimulus package.

Luring always involves a compound stimulus (S_1 , S_2 , etc.). I will label food the S_1 and the hand motion the S_2 . They are presented simultaneously, and a response will be made (e.g., sitting). Later, it may be observed that the S_1 , presented by itself, produces a response, but the S_2 , presented on its own, does not produce a response. This is likely because the S_1 (food) is more salient than the S_2 (hand signal) and, therefore, the food overshadows the hand signal and compromises the conditioning (Chance, 2009, p. 74).

Behavior is said to be under stimulus control when it occurs upon presentation of the S^D . For stimulus control to be achieved, the S^D has to be a relevant and reliable predictor of reinforcement; it must be sufficiently conditioned, with careful attention to contingency and contiguity criteria. At the same time, the reliability of the S^D is determined by the strength of its association with the response–reinforcement contingency (Burch & Bailey, 1999, p. 70). The prompt simply generates the behavior. However, because a prompt utilizing food is so salient, it can become established as the S^D . When using food as a prompt, problems arise when the dog learns that the food, in its role of reinforcer, is only likely when food is presented in its role of prompt.

Food, once well established as the S^D , will interfere with transfer of stimulus control, making it less likely that the dog will respond to the hand signal alone, and later to the verbal cue. It seems likely that this phenomenon is at least partially attributable to overshadowing. Using a primary reinforcer (food) together with the hand signal as a prompt represents an instance of compound stimuli and, as a result, the hand signal (the intended discriminative stimulus) is

overshadowed by food. This reduces the efficiency and effectiveness of the training process.

Often, and especially where novice trainers are concerned, food is produced as a last attempt to get compliance from the dog (Sdao, 2005). The scenario looks like the following:

1. “Rover, come”.
2. Nothing happens.
3. “Rover, come here” (while walking towards the dog).
4. Rover moves farther away.
5. “Rover, come here now” (while running away from the dog).
6. Rover looks and goes to smell another tree.
7. Trainer waves a food treat at the dog.
8. Rover comes running.

In this example, the dog may have learned, through discrimination, to wait for the final cue, which is waving food at him. But once again, this is a compound stimulus—food and hand-wave—where food has become part of the S^D .

The novice trainer may believe that presenting the food prompted the dog to come. But it seems likely that the food becomes part of the S^D and, furthermore, it likely acts as a conditioned reinforcer for smelling-a-tree behavior, if that was the last behavior the dog emitted before the recall was cued. In short, food became part of the S^D and, through discrimination training, the dog learned that food in hand predicts reinforcement and no food predicts lack of reinforcement. To reiterate, food likely acts as a conditioned reinforcer, because

the mere sight or odor of it predicts its delivery. Once delivered, food acts as a primary reinforcer. Here we have an instance of food playing the role of both a conditioned reinforcer for smelling a tree (undesirable behavior), and the S^D for recall behavior (desirable behavior). If we elect to use food as a prompt, it should be faded early in the training process, before it becomes an established part of the S^D .

Since the S^D has to be a relevant and reliable predictor of reinforcement (in order for the behavior to remain under its control), stimulus control has to be transferred, as early as possible, from the food to the hand signal, and subsequently to the verbal cue. Fading is one way of transferring stimulus control from the food lure to the S^D (Miltenberger, 2004, p. 196). Fading makes learning a new S^D -behavior-reinforcer contingency possible by gradually making the prompt less salient and the S^D more salient.

There are different ways of fading the prompt. One of them entails the sudden removal of the lure. For example, the lure is removed after about three to five trials. In this instance, because food is also an olfactory prompt, it fades in the form of visual prompt first, and then in the form of olfactory prompt; the dog no longer sees the food but can still smell it on our fingers. Another way of fading the lure is to use it intermittently. For example, prompt the behavior two or three times with the food lure; prompt it once with the hand signal only; prompt it once with the food lure; prompt it two or three times with the hand signal only. In this instance, food

is made more and less salient, both as a visual and olfactory prompt, but with a decreasing ratio of salience. By performing these trials in rapid succession, we utilize behavioral momentum. The lure can also be made less salient by changing its size; we can maintain the form of the S^D , and use a smaller lure with each trial. In this instance, food gradually loses its salience, both as a visual and olfactory prompt.

The schedule of reinforcement used will ensure the target behavior does not extinguish once the lure has been faded. Generally, a continuous reinforcement schedule is necessary during the acquisition stage of learning. But an intermittent reinforcement schedule needs to be put in place and gradually thinned, for maintenance.

In conclusion, “lure and reward” is a very useful training technique; it produces fast results, and is a simpler skill set for most guardians than free shaping, minimizing the frustration common with novice attempts at free shaping. However, it has important limitations that can reduce training efficiency. Improper use of food can result in inadvertently training undesirable behaviors; in the food itself taking on stimulus control of the behavior, due to overshadowing and inadvertent discrimination training; and in the food acting as both antecedent and consequence in the stimulus package. Fading the lure, early in the training process, and concentrating more on setting an S^D -behavior-reinforcement contingency and maintaining that contingency are paramount if lure and reward training is to be efficient.

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