A Framework for Solving Behavior Problems: Functional Assessment and Intervention Planning

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Abstract: Behavior problems exhibited by exotic pets are frequently the impetus for caregivers to seek help from veterinary professionals. One barrier to helping caregivers resolve these problems is the commonly held view that behavior is something an animal *has* rather than something it *does, given certain conditions*. By identifying and changing the conditions in which problem behaviors occur, problem behaviors can be replaced with appropriate behaviors, and caregivers and pets will experience more success living together. Functional assessment a set of procedures used to identify the functionally related environmental conditions that maintain problem behaviors. These procedures have been well-validated within the field of applied behavior analysis, particularly with children exhibiting severe behavior problems. Functional assessment appears to have wide applicability to pets and other animals in captivity, as well. The outcome of a good functional assessment is a summary statement that includes: 1) a clear, observable description of the problem behavior, 2) the general and immediate environmental conditions that predict the behavior, and 3) the purpose the behavior serves for the animal (i.e. the consequences the behavior produces). With this information, environmental changes can be made to make the problem behavior irrelevant, inefficient and ineffective. Without this information, the wrong behavior may inadvertently be reinforced. At the same time, alternate behaviors that are acceptable to the caregivers can be reinforced to meet the same, or different, functions for the animal. A framework for accomplishing a functional assessment and systematic intervention planning is presented.

Keywords: functional assessment; analysis; problem behavior

Understandably, too few veterinary professionals are aware of the behavior-change technology known as applied behavior analysis. Until recently, this technology was mainly applied to human learners, especially in the area of special education. More comprehensive than basic operant conditioning procedures, applied behavior analysis offers a sharp set of well-validated tools for providing positive behavioral support to individuals exhibiting problem behaviors and their families. Functional assessment is one of these tools. It is the first step to accurately assessing what's going on and why – two essential building blocks for developing effective intervention plans. The relevance of applying a teaching technology to exotic pets that has been used extensively for solving human behavior problems is made clear in the following description of behavior by O'Neill, Horner, Albin, et al., [1]:

> Problem behaviors may take many forms, such as self-injurious hits, bites, violent and aggressive attacks, destruction of property, and other seriously disruptive behaviors (such as screaming and tantrums). The individuals who exhibit problem behaviors may be labeled in a variety of ways…or they may carry no formal diagnostic labels.

> Problem behaviors often are a source of confusion and frustration… In many situations, problem behaviors may not only be dangerous but may also seem inexplicable. Such patterns of behavior do not fit with the way we think the world should work and often don't make sense to people in the throes of the dilemma created by their occurrence.

As you may have guessed, the above quote refers to children with severe behavior problems. Yet this description might apply to the problem behaviors exhibited by exotic pets that lead their owners to seek help from veterinary professionals. Indeed, behavior analysis addresses problem behaviors at a level that cuts across species, that is, behavior-environment relations. Functional assessment is used to identify both the environmental events and conditions that set the occasion for a problem behavior to occur and the outcome that gives the behavior purpose. With this information, we can better generate effective, efficient, and humane intervention plans to keep pets welcome and thriving in their homes.

Working with Behavior and Conditions, Not Labels

One of the biggest barriers to providing effective behavioral support is the idea that behavior is something an animal *has*, instead of something an animal *does, given certain conditions*. Behavior occurs in contexts, not in animals. When we think the problem occurs in animals, we naturally try to change the animal; when we think the problem occurs in contexts, we try to change the context instead (O'Neill, et al, 1997). Rather than describing behavior in terms of personality traits or diagnostic labels (i.e. the chinchilla is a biter; the parrot is psychotic), the goal of functional assessment is to describe problem behavior situations. Using labels can result in serious liabilities for the animal so described, for to the following reasons:

1. Labels are based on circular reasoning that is not scientifically verifiable.

2. Labels become self-fulfilling prophecies [2].

3. Labels predispose us to using ineffective, forceful, or harmful strategies.

4. Labels create a false sense of having explained behavior, when all we've done is given it a name, ending the search for actual causes we can do something about [3].

5. Labels provide excuses to get rid of the pet.

Consider the lack of useful information provided by a pet owner who describes his/her parrot as *vicious*. Exchange the label for a clear description of overt behavior, what the parrot *does* that can be observed: *The parrot bites*. Add to that description, the antecedent conditions that predict the behavior: W*hen I put my hand in his cage, the parrot bites*. Last, include the purpose for the behavior, that is, the consequence it produces for the bird: *When I put my hand in his cage, the parrot bites, and I remove my hand*. This summary statement is what is needed to design an effective intervention.

Functional Assessment

The outcome of a good functional assessment is four-fold: First is a description of the problem behavior in unambiguous, observable terms. Second is the identification of the general and immediate physical and environmental conditions in which the problem behavior is likely to occur, and also the

conditions under which it does not occur. Third is information about the purpose the behavior serves the animal, or the outcomes or consequences that reinforce (i.e. maintain or increase) the behavior. Fourth is the development of a summary statement in which the information is combined. The functional assessment of problem behavior provides the basis for building a behavior change plan, which entails targeting existing alternate or new behaviors and redesigning the environment to promote and maintain them. Without this information, we may inadvertently make the problem behavior worse with a faulty solution.

The steps for conducting a functional assessment are as follows:

1. Observe and operationally define the target behavior.

    a. What does the animal do that can be observed and measured?

2. Identify the general and immediate physical and environmental antecedents that predict the behavior.

    a. What general conditions or events affect whether the problem behavior occurs?

        i. Medical or physical problems?

        ii. Sleep cycles?

        iii. Eating routines and diet?

        iv. Daily schedule?

        v. Enclosure and activity space?

    b. What are the immediate antecedents (predictors) for the problem behavior?

        i. When, where, and with whom is the behavior problem most likely to occur?

        ii. Does the behavior immediately follow a caregiver's demand or request or a person's entering or leaving the environment?

    c. When is the animal most successful, that is, when doesn't the problem occur?

3. Identify the consequences that maintain the problem behavior (i.e. the immediate purpose the behavior serves).

    a. What does the animal gain by behaving in this way, such as attention, an item or activity, or sensory feedback?

    b. What does the animal escape or avoid by behaving in this way, such as particular people, a demand or request, items or activities, or sensory stimulation?

c. To what extent does the animal's "natural" environment support the behavior (i.e. what function might it serve this species in the wild)?

4. Develop a summary statement that describes the relationships among the antecedent predictors, the behavior, and the consequence for each major situation in which the behavior occurs, as in Figure 1.

Figure 1. Functional assessment summary statement

General events: This guinea pig was re-homed after spending its first 6 months

running loose in a dark basement with 9 others guinea pigs. It was

malnourished and under-socialized.

Antecedent: When I walk out of the room

Behavior: the guinea pig hits his water bottle repeatedly

Consequence: to get me to come to his cage and pet him.

Considerations for Developing a Behavior-Change Plan

Reducing problem behaviors is not the only goal when planning an intervention. A good plan is one in which the physical and social context of the living setting are redesigned to provide the animal with an opportunity to replace the function served by the problem behavior with an acceptable behavior, and to allow the animal to learn new skills that make the problem less likely to occur.

O'Neill, et al., (1997) describe four considerations to increase the effectiveness and efficiency of behavior change plans:

First, behavior support plans should describe how the environment will be redesigned to promote and maintain appropriate behavior. This is accomplished by changing a wide range of conditions such as medications, diet, physical settings, schedules, exercise, training procedures, and the use of rewards and punishers. It is also important to describe in detail exactly who in the family will do what and when. To change animal behavior, we change what we do, including the environment we provide.

Second, there should be a clear linkage between the functional assessment and the intervention plan. Following our example with the guinea pig, the functional assessment suggests that this animal repeatedly hits its water bottle to gain human attention. Therefore, the intervention plan to reduce this behavior should identify what alternative behaviors the animal can use to get attention, including teaching the pet new behaviors, and what other reinforcing activities the animal can engage in besides attention-seeking behaviors. The main focus of an intervention plan should be on what an animal should do, not on what it should not do.

Third, behavior change plans should be technically sound. A technically sound plan is one that adheres to the scientific principles of learning and behavior in order to make the problem behavior irrelevant, inefficient, and ineffective. A problem behavior becomes irrelevant when an alternate behavior provides the same, or more, reinforcement. A problem behavior becomes inefficient when, compared to the wrong behavior, the right behavior can be performed with less effort, fewer responses, and results in

quicker reinforcement. Finally, a problem behavior becomes ineffective when the maintaining reinforcer is reduced or withheld each time the behavior is exhibited.

Fourth, the behavior-change program should fit with the caregiver's setting and skills. There are always several different strategies for changing problem behaviors; the best one is the one that can be implemented effectively by the people responsible for the plan. Interventions should fit the caregiver's routines, values, resources, and skills. A good plan is effective in helping the animal and also results in reinforcing outcomes for caregivers in both the short and long run.

The criterion used for selecting among several possible behavior-change strategies should also be addressed. Too often, effectiveness is the sole criterion for selecting a particular strategy, when people state, "This approach has worked for me for years!" At this stage in the development of applied behavior analysis, enough is known about learning and behavior for us to implement behavior-change strategies that are not only effective but also humane. Strategies should be selected according to the most positive, least intrusive criterion. For example, a parrot can learn to step on its owner's hand by being toweled and taken out of its cage; however, a more positive, less intrusive, effective strategy is to reward progressively closer proximity to the caregiver's hand, one small step at a time. This is a procedure known as shaping or differential reinforcement of successive approximations.

Setting Behavior Targets and Designing a Behavior-Change Plan

After the functional assessment summary statements have been developed, the primary caregiver can answer following questions to plan the behavior-change program:

1. Replacement behavior: What existing alternative behavior would meet the same purpose for the animal?

    a. Rather than _____

                        (Identify the problem behavior)

    b. This animal can _____

                        (Identify the replacement behavior)

    Example: Rather than biting my hand, this parrot can lean away.

2. Desired behavior: What behavior do you ultimately want the parrot to exhibit?

   a. When _____

      (Summarize antecedents)

   b. This animal_____

      (Identify desired behavior)

   c. In order to _____

      (Summarize "payoffs")

   Example: When I offer my hand, this parrot can step up, in order to get a ride to the play tree.

3. What has been tried so far to change the problem behavior?

4. Preliminary strategies: Can I do something different or change something in the environment so that the behavior doesn't occur in the first place?

   a. I could make adjustments related to WHEN the problem behavior is likely to occur by:

   b. I could make adjustments related to WHERE the problem behavior is likely to occur by:

   c. I could make adjustments related to the ACTIVITY during which the problem behavior is likely to occur by:

   d. I could make adjustments related to the PEOPLE present when the problem behavior is likely to occur by:

   e. I could teach/re-teach a behavior such as:

   f. I could adjust some aspect of the environment by adding, removing or changing an item or condition such as:

   g. Other adjustments that can be made are:

5. Training strategies: What skill(s) will the animal need to be taught in order to successfully demonstrate the replacement/desired behavior? _____

   a. Who will provide the training?

   b. When will the training take place?

   c. Where will the training take place?

   d. How often will training take place?

   e. How and how often will opportunities for practice be provided?

6. Reinforcement procedures: What will I do to increase the occurrence of the replacement/desired behavior?

    a. Identify potential reinforcers: What preferred items, activities, or people might be used as incentives in an intervention for this animal?

    b. Establish specific behavior criteria: What exactly must the animal do to earn the above reinforcers?

    c. Determine the schedule of reinforcement: How frequently can the animal earn the above reinforcers? Typically, continuous reinforcement is best (that is, a reinforcer for every correct behavior).

7. Reduction procedures: What will I do to decrease the occurrence of the problem behavior?

    a. I will ignore all occurrences, immediately attending to something else, by:

    b. I will stop and redirect each occurrence of the behavior by:

    c. I will implement time out from positive reinforcement by:

    d. Other strategies:

8. Implementation details: What other details or explanations would help another person implement this plan accurately and consistently?

9. Tracking change: How can I monitor the animal's behavior so I have a reliable record of progress and can continue or modify the plan as needed?

    a. Describe exactly how data will be collected and recorded.

        i. Frequency count of the target behaviors across the day.

        ii. Frequency count from ___:___ am/pm to ___:___am/pm

        iii. Timing duration of target behaviors.

        iv. Other

10. Evaluating outcomes: This program will be considered successful if what outcome is achieved by both the animal and the caregivers, under what conditions?

Figure 2 shows a diagram of the functional assessment and alternate behavior paths, plus a form on which to list possible strategies to make the problem behavior irrelevant, ineffective, and inefficient.

Figure 2: Functional assessment summary statement, alternate behavior paths and strategies form

_____ → _____
Desired Behavior   Consequence
                    ↗
_____ → _____ → _____ → _____
Setting Event   Antecedent   Problem Behavior   Consequence
                                      ↘   ↗
                              _____
                              Replacement Behavior

Brainstorm Strategies that make problem behavior irrelevant, ineffective, and inefficient

Setting Strategies	Predictor Strategies	Teaching Strategies	Consequence Strategies

Conclusion

        The focus of exotic pet medicine is often what makes each species unique. However, many of the behavior-change tools used by behavior analysts are universally applicable across species, as are the scientific principles on which this technology is based. Well-validated practices used to support humans exhibiting behavior problems offer a rich and robust set of procedures and solutions. They also provide a humane ethic from which to understand, predict and change animal behavior.

        A barrier to resolving behavior problems is peoples' tendency to attribute the cause of behavior to species characteristics, neuro-endocrine functions, and personality traits. Genetic mechanisms and individual physical correlates of behavior are important to consider as part of the general setting in which behavior occurs. Nevertheless, many, if not most, behavior problems exotic pets exhibit can be improved by changing immediate environmental predictors and outcomes. By using the functional assessment and intervention planning approach presented here, caregivers learn to respect animals in new and important ways. Rather than holding their pets responsible for problem behaviors, caregivers recognize that animals engage in problem behaviors because the environment supports those behaviors. As a result, caregivers are better able to assess and redesign the environment in ways that work for their pets and themselves.

References

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