

HOW TO COMMUNICATE EFFECTIVELY WITH OUR CLIENTS AND PATIENTS: UNDERSTANDING THE BASIC PRINCIPLES OF LEARNING AND BEHAVIOR

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"Behavior Cases" are different...

Most of our clients expect to make regular visits to their veterinarian for physical check-ups, vaccinations, dental exams, routine surgeries [spay, neuter] – and, depending on the breed, other possible "expected" reasons – e.g., back surgery for a Dachshund or French Bulldog, ear infections for Cocker Spaniels, etc. With the vast majority of these issues, the patient is presented to the veterinarian, a diagnosis is made, treatment is given, and the patient responds and recovers.

Not necessarily so with "behavior cases".

First, it is important to realize that when you're talking to a client with a dog or cat that has a behavioral issue, that they are dealing with a pet that they didn't sign on for. They expected the more routine reasons to be meeting with you. They didn't expect to be talking to you about their dog who is growling at their child or is trying to bite every person who enters the house. They didn't expect the cat that they adopted from a breeder to be urine marking all around the house. They didn't expect their newly rescued dog to be digging and chewing through the dry wall when it's left alone or when it's storming.

These are dire problems. And unfortunately, not always ones that can be diagnosed, treated, and "fixed" as easily as others you are tasked to deal with.

BUT that doesn't mean that you can't help. You can!!

The various medications that can be used to address anxiety – which is at the root of many behavioral issues – are discussed elsewhere. And while medications can be a very important arm of treatment, educating the client as to what their pet is doing and why, along with changing the reason the behavior is occurring are just – if not more – important.

COMMUNICATION

When it comes to behavior cases, communication is important on two fronts: 1) Communication with the human and 2) Communication with the pet.

- Communicating with humans involves understanding and empathy. Remember: you're dealing with a person who has a pet that has not met their expectations. You are very likely to hear: "I've owned dogs all my life and have never had a dog like this!" Or, "I've had cats since I was a child and never have I had one act this way!" Listening is going to be a big part of treatment. Finding analogies, stories, that you can share to help make your client feel less alone can be SO helpful.

For example: Your client tells you that they have had Labrador Retrievers all their life, but never have they had one that is aggressive to people. "Why is this dog so different?" Do you really know the answer to that question? Maybe. Maybe not. But what you DO know is that behavior is always going to be a manifestation of Nature/Nurture, so start there. All dogs are different. We may have siblings, but are they anything like us? Maybe, but many times not at all. When clients think about their own situation – as humans – it often makes them more understanding about their pets' behaviors. And once you have a more understanding client, you have one who is more likely to be on board with treatment.

Expectations is another topic that needs to be addressed. Remember: You're talking with a client who "expected" their dog or cat to be something – a dog that would get along with their other dogs, a dog who would love all of their family and friends, a dog who would be okay when it stormed, a cat who would use the litter box, and on and on... But they don't have THAT pet. They have a "special needs" pet. And by putting it into those terms, clients become more understanding, more accepting of the pet that they actually have, and as a result more amenable to doing what has to be done to keep them.

Finally, clients need to understand that any treatment of behavioral issues is going to be multi-faceted and is going to take time. It's important to let your clients know up front that this is the case. These cases are NOT going to be a "one and done" scenario. But that said, by understanding and implementing the simple principles of learning, changes in behavior can be seen fairly quickly.

- Communicating with the pet is a whole other story... We – who are used to communicating using our language [English, Spanish, Italian, etc.] – are at a loss. Our language doesn't work here. This is where the basic principles of learning come into play. Many of the behaviors that we as veterinarians are tasked with changing have been learned – and therefore, can be unlearned. It's also very important to realize that most, if not all, behaviors are happening for a reason. Asking or demanding that the behavior stops ["No barking!"] isn't likely to have an effect. One needs to address the reason that the behavior is happening in the first place and change that reason.

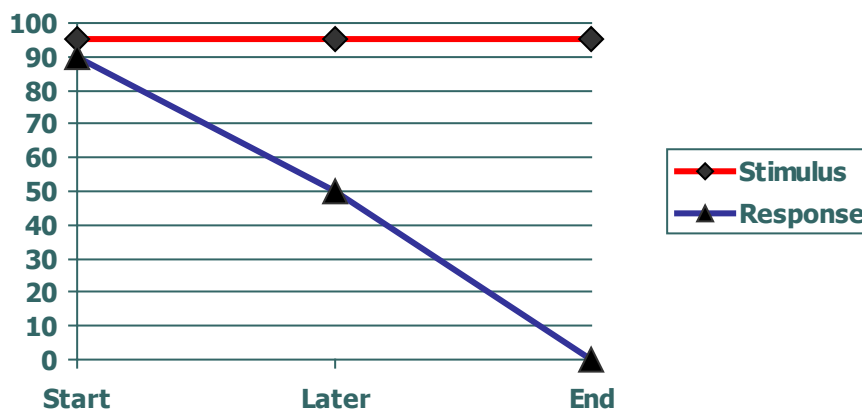
Take **barking** as an example. Simply, barking can happen for two reasons: 1) To get something – attention, to be let outside to play or eliminate, to be petted, etc. Or, 2) To express an emotion – to communicate fear, uncertainty, etc. The first reason is learning by means of Operant Conditioning: I must do something to get something. "If I bark, someone lets me outside so I will bark to be let outside in the future." The second reason for barking is a result of learning that something bad has happened to the dog in the situation or the dog is uncertain as to what is going to happen. The tricky thing here is that there is no way to know. The dog can't tell you. BUT you can infer that the dog is either afraid or uncertain – the dog is anxious. So, you change the situation so that is no longer the case. By implementing Classical Conditioning, the meaning of the trigger/threat/situation can be changed to something predictable and positive.

Below are the more common learning principles that can be helpful in addressing all sorts of behaviors – in a way that both humans and pets can understand.

LEARNING is an enduring change in the mechanisms of behavior involving specific stimuli and/or responses that results from prior experience with similar stimuli and responses.

Habituation

A decrease in response as a consequence of repeated exposure to a stimulus – such as the startle reaction to noise. It is typically highly specific to the stimulus that is repeatedly presented such as traffic, sirens, thunder.



The initial response is *innate*, not learned (e.g. startle in response to a loud noise). It is the decrease in the response that is learned.

Habituation ≠ Extinction

In extinction, it is a *learned* response that is lost.

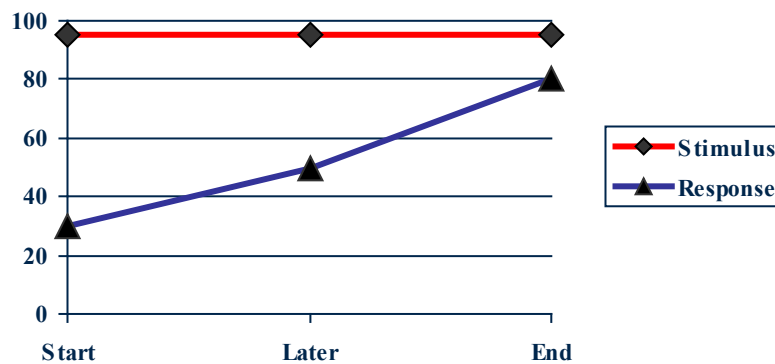
With habituation, the organism ceases to respond to a stimulus, even though it remains fully capable of sensing the stimulus and of making the muscle movements required for the response. The response fails to occur because changes in the CNS block the relay of sensory neural impulses to the motor neurons.

Dishabituation

The habituated response is restored by exposure to a strong extraneous stimulus paired with the stimulus to which the animal has habituated. There is a recovery in the response to a previously habituated stimulus.

Sensitization

An increase in responsiveness produced by repeated stimulation. Sensitization processes generally have temporary effects. The duration is determined by the intensity of the sensitizing stimulus. More intense stimuli produce greater increases in responsiveness, and with more intense stimuli the sensitization effects persist longer.



Habituation/Sensitization

These two effects reflect how an organism ends up sorting out what stimuli to ignore and what stimuli to respond to.

Example: Dog with storm phobia

Dog ignores wind and rain (habituation)

Becomes more reactive to thunder over time (sensitization)

Both habituation and sensitization involve learning about *just one stimulus*.

Classical Conditioning

Also called Pavlovian Conditioning

The simplest mechanism whereby an organism learns about **relationships between stimuli** and comes to alter its behavior accordingly – it learns which stimuli tend to go with which environmental events. These systematic studies began with the work of Russian physiologist Ivan P. Pavlov.

The Components of Classical Conditioning

Unconditioned Stimulus (**US**)

A stimulus that elicits a particular response without the necessity of prior training

Unconditioned Response (**UR**)

A response that occurs to a stimulus without the necessity of prior training

Neutral Stimulus (**NS**) and Conditioned Stimulus (**CS**)

A stimulus that does not elicit a particular response initially (NS), but comes to do so as a result of becoming associated with a US (CS)

Conditioned Response (**CR**)

The response that comes to be made to the CS as a result of classical conditioning

Unconditioned Stimulus (US)

→→→ Unconditioned Response (UR)

Neutral Stimulus (NS) + US

→→→ Unconditioned Response (UR)

NS becomes a Conditioned Stimulus (CS)

→→→ Conditioned Response (CR)

Classic Example:

US (food) →→→ UR (salivation)

NS + US →→→ UR

Neutral Stimulus becomes a Conditioned Stimulus

CS →→→ CR

The Response is called a Conditioned Response when it is elicited by the Conditioned Stimulus

Not All Stimuli Are Equal

The number of pairings needed between a CS and a NS depends on:

Intensity of the stimulus

Example: Dog with storm phobia

No previous history of fear of storms

Dog experiences bad storm where lightning strikes nearby and causes tree to fall on dog house

Severe subsequent fear of storms

One pairing was all it took

Relevance of the Neutral Stimulus

How “neutral” is the stimulus?

How well does it pick up the animal’s sensual modality?

Example: Dogs and cats have better olfaction than humans do

Need to determine what the triggers are: Visual? Auditory? Olfactory?

Classical Conditioning Example

Fear in a dog

US = being yelled at

UR = fear

NS = sight of owner and/or sound of owner’s voice

Various stimuli associated with the owner (NS) become *Conditioned Stimuli* and come to elicit the *Conditioned Response* of fear

Stimulus Discrimination

Only specific stimuli elicit the response – such as:

small women with blond hair

tall men with dark hair and beards

particular person wearing particular clothing

small, white, fluffy dogs

Example: Fearful dog with an unknown history, found as stray by couple that hunted. The dog’s subsequent radiographs showed that he had buckshot throughout. The dog typically stayed away from the gun case in the house and he was afraid of camouflage clothing. This dog had a **continuum of fear**. The worst: large, tall, bearded strangers wearing camouflage. Next: tall, bearded strangers not in camouflage or some other person wearing camouflage. Next: men in general.

Stimulus Generalization

The response is elicited by a diverse, but related, group of stimuli – such as:

all women

all men

all people

all dogs

Extinction

If the *animal is repeatedly exposed to the CS without further pairing with the US*, then the animal’s response to the CS will eventually cease and extinction will occur.

Example:

Palatable food is paired with bell

Dog salivates after certain # of pairings when there is just the sound of the bell

Stop pairing food and bell

After certain amount of time, dog no longer salivates when it hears the bell

So... **keep the rewards coming!** Otherwise the animal stops the behavior.

Extinction vs. Habituation

Extinction: Loss of a learned response

Habituation: Loss of an innate response

Operant Conditioning

Also called Instrumental Conditioning - Behavior is affected by its consequences. Theory developed by B.F. Skinner – and his “Skinner Boxes”.

Instrumental Behavior – is behavior that occurs because it was previously instrumental in producing certain consequences - “**Goal-Directed**” behavior

Operant Conditioning Terms

“Reinforcement” = The probability that the behavior will recur is **INCREASED**

“Punishment” = The probability that the behavior will recur is **DECREASED**

“Positive” = The Controlling Stimulus is present or occurs because of the response occurring. The response produces the stimulus - Appetitive or Aversive.

“Negative” = The Controlling Stimulus is absent or is removed because of the response occurring. The response eliminates or prevents the occurrence of the stimulus - Appetitive or Aversive.

4 Possible Combinations:

- Positive Reinforcement
- Negative Reinforcement
- Positive Punishment
- Negative Punishment

1. Positive Reinforcement = The probability that the behavior will recur **increases** as a consequence of the Controlling Stimulus being **present** or **occurring** immediately subsequent to the behavior

If you do X and good things happen, keep doing X

Example: Client with indoor/outdoor cats. All the cat has to do is scratch at the back door – inside or outside – and a human will come and open the door. “If I scratch at the door, good things happen, so I’ll keep scratching at the door.”

2. Negative Reinforcement = The probability that the behavior will recur **increases** because of the Controlling Stimulus being **absent** or **removed** if the behavior occurs

If you do X and bad things go away or stay away, keep doing X

Example: Dog aggressive to children. Child is causing the dog pain. The dog growls and the child goes away. The *growling is negatively reinforced*.

Example: Cat aggressive to children - same as with dogs. Child causes the cat pain. The cat hisses, growls, or bites and the child goes away. *This aggressive behavior is negatively reinforced*.

3. Positive Punishment = The probability that the behavior will recur **decreases** because of the Controlling Stimulus **occurring** immediately subsequent to the behavior (Usually referred to as “Punishment”).

If you do X and bad things happen, stop doing X

Example: Bark Collar – “If I bark, I get a gentle spray of nasty smelling citronella in my face, so I’m not going to bark”

4. **Negative Punishment** = The probability that the behavior will recur **decreases** as the consequence of the Controlling Stimulus being **absent** or **removed** if the behavior occurs (Usually referred to as "Time Out")

If you do X and a good thing doesn't happen or stops happening, don't do X

Example: If puppy mouths owner's arm, owner gets up and walks away.

For punishment to be effective, **three conditions must be met:**

The punishment must be immediate

The punishment must be consistent

The punishment must be appropriate for the individual animal

Punishment – Immediate - While the animal is exhibiting the behavior – just as *dog is defecating indoors* - Within 1 second of exhibiting the behavior

Punishment – Consistent - Needs to happen every time the behavior occurs. If punishment occurs only under some circumstances, animals often discriminate the circumstances in which the aversive stimulus does not occur.

Punishment – Appropriate - The punisher should be strong enough to interrupt the behavior, but not excessive as to cause fear. "Remote" punishers tend to work best. It is important to remember individual differences. For some dogs, a simple "no" is enough. For other dogs, a loud "no" with an additional gentle holding on of the scruff is needed. The same thing goes for cats. For some cats just the presence of a water bottle is enough to deter them. For others, the water bottle is just another game.

If the 3 necessary conditions are not met, use of "punishment" is unlikely to be successful.

Start with the strongest punishment that you are willing to use.

When punishment works, the bad behavior stops!

Use of the aversive stimuli typical of punishment introduces the risk of causing fear-related problems.

Don't do what doesn't work!

Punishment – Effective Use

Human-directed play aggression in cats

Housetraining in dogs

Punishment – Ineffective Use

Dog getting into the garbage at night or during the day when no one is around. The "punishment" is often administered several hours later. Owners think the dog "knows it's been bad".

Why?.... What is **really** going on?...

Classical Conditioning

The dog gets yelled at and/or hit →→ Fear

The frowning owner + garbage on the floor change from being a NS to being a CS eliciting the fear response

Dog lowers ears and tail and runs away – these are appeasement behaviors. The owner thinks dog "knows it did wrong".

Dogs only know what they've been taught! What we think we're teaching and what your pet is learning can be two entirely different things!

Operant Conditioning - Common Errors

Punishment \neq Negative

Punishment = behavior decreases

Negative = CS* absent or removed

Confusion of terms “negative” and “aversive”

Operant Conditioning - Schedules of Reinforcement

A program that determines how and when the occurrence of a response will be followed by a reinforcer. The delivery of a reinforcer may depend on: the occurrence of a certain # of responses, the passage of time, the presence of certain stimuli, and/or the occurrence of other responses.

Continuous Reinforcement

The required number of responses is “1”

Every occurrence of the instrumental response results in the delivery of the reward

Example: Dog gets a treat **every time** he sits on command

Continuous Reinforcement is the *most effective method when an animal is first learning a new behavior*.

Variable Ratio or Intermittent Reinforcement

A different number of responses is required for the delivery of each reward.

Example: Trainer requires the dog to sit 4 times before he gives the first treat, 2 times for the second treat, 1 time for the third treat, and so on.

If an animal is on a steadily increasing variable ratio schedule, the *behavior tends to become very persistent*

Variable Ratio - Uses: Any behavior we wish to become persistent such as sit, stay, heel.

Variable Ratio - Problems: Nuisance behaviors such as barking and jumping up. *These behaviors are reinforced by giving attention some of the time.*

Reinforcers and Motivation

The animal's motivation affects how fast and how well learning occurs. A hungry animal responds better to food rewards than a satiated animal. Animals perform better for highly palatable food treats than for low palatability food treats:

roast beef > hard dog treat > cheerio

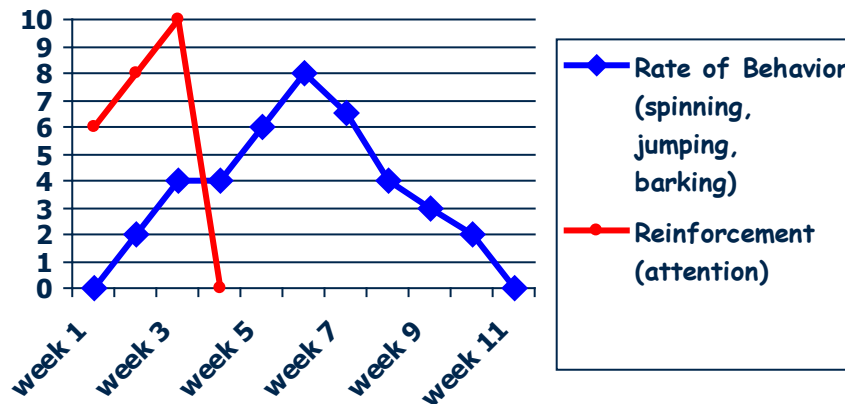
Secondary Reinforcers and Punishers

Due to Classical Conditioning, a Neutral Stimulus can come to have a similar rewarding or punishing value as an Unconditioned Stimulus. A clicker can be associated with food treats; the sound of keys being picked up can be associated with being left alone.

In General, because of Classical Conditioning:

Animals trained using appetitive techniques tend to have relaxed and friendly attitudes – ears up, focused, “happy”. Conversely, animals trained using aversive stimuli tend to have fearful or anxious attitudes – head down, tail down.

Extinction of a Learned – Motivating – Behavior



With EXTINCTION there is typically what's called the "extinction burst" – where **the behavior gets worse** (increases – such as between week 4 and week 7 in the above graph) **before it gets better**. This occurs when you only ignore the behavior – not giving the individual something else to do. With "response substitution" this phenomenon is less likely to occur.

Learned Helplessness

Interference with the learning of new instrumental responses as a result of exposure to inescapable and unavoidable aversive stimulation

Experiment:

Normal, naïve dogs are put into a situation where shock is signaled. The dog learns to escape the shock at first, then avoids the shock. He learns that the signal predicts the shock.

Dogs that previously have been exposed to unavoidable shock act in a quite different manner. They fail to learn to avoid and they fail to learn to escape. They simply sit and take the shock. The dog has learned that there is no consequence to its behavior. There is no benefit to trying to get away. "Life is horrible..." The dog shuts down.

Learned Helplessness - Clinical Relevance

Improper use of punishment

Continuous use of shock

Dominance training

The α -roll

Flooding

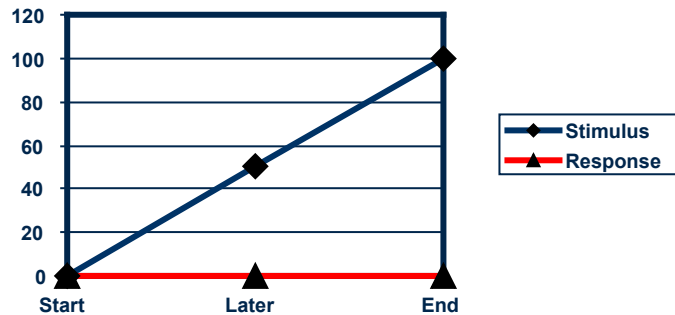
Animals with a history of chronic, inescapable abuse are typically withdrawn and present with abnormal behavior. They may not play and sometimes they don't seem to respond to rewards. Getting them "back" will take time...

Flooding

Term used for the deliberate exposure of the animal to a stimulus until the response extinguishes or the animal habituates. Once a flooding session is initiated, exposure to the stimulus must continue until the response ceases – otherwise the behavior may be reinforced. Animals with strong fears may injure themselves, other animals or people in the vicinity, or damage their surroundings.

Desensitization

Expose pet to low-level stimulus. The stimulus elicits a low-level response that can be easily interrupted/diverted. **Gradually** increase the intensity of the stimulus - ideally without eliciting the response.



Counter-Conditioning

Response Substitution - A response is elicited that is **behaviorally** and **physiologically** incompatible with another response. Fido cannot be anxious and relaxed at the same time. Reward Fido for relaxation. Counter-Conditioning reverses the animal's previous response to a stimulus.

For example: an animal may be conditioned to be relaxed in the presence of a stimulus that initially elicited withdrawal reactions – such as approaches by strangers.

Desensitization and Counter-Conditioning Applications:

- Fear of people
- Fear of noises
- Fear of thunder storms
- Aggression to people or other animals
- Fear of being alone
- Barking