

Free-flight: The Ultimate form of Choice and Control... Or is it?

Abstract

'Choice' and 'control' have become buzzwords in the zoological world recently, and as with many buzzwords, they can be misused. In this case, some people string them together as if they are one word or a single concept. In fact, they are distinct terms with different meanings and separate applications, although they relate to one another. Flying birds free without restraint, or 'free-flight,' is an activity that may be closely associated with the concepts of choice and control because of the freedom they provide a bird, and the extent to which it allows the bird to make choices and have control in their environment. But is engaging in free-flight itself actually what provides choice and control for an animal? This presentation will take a hard look at the activity of free-flying birds, including various factors that might limit a bird's choices and control even when free-flying: food and weight management, motivating operations, current antecedent conditions, past learning history, trainer skill levels, and much more.

Introduction

Watching a bird glide overhead to land on a trainer's hand inspires the notion of the bird having complete choice and control in the experience, right? But there may be a backstory that is not so obvious, even to the educated eye. Sure, the bird has obvious choices—such as where and when to land, how high to fly; an entire sky to maneuver within that humans can't access without training and equipment. But despite this, does the bird have *genuine* choice? Does the bird have the *freedom* to make choices, and if so, to what degree? Is the training coercive? To answer these and other questions, we start by looking deeper into the conditions in which the bird performs.

Choice and Control

Some people talk of 'choice' and 'control' as if they are one word: choice-and-control. "*Give more choice and control and you improve welfare.*" But they are separate words with different, (though associated) meanings.

Choice is "*the distribution of operant behavior among alternative sources of reinforcement*" (Englund, 2023). This refers to the animal's ability to choose between multiple behaviors that may lead to desired outcomes. We often provide opportunities for animals to choose between different behaviors such as flying to the glove or to a perch for a food reinforcer, moving toward us for a treat or moving away to a perch with a good view, eating a treat or playing with a toy. In these cases, food is not always the reinforcer for the behavior. Sometimes behavior is reinforced by secondary reinforcers such as playing with toys, being with another bird, or sitting on a perch with a good view.

Control is "*the ability to change one's environment*" (Alligood, 2023) such as flying from one place to another, showing aggressive behavior to encourage another animal to move away, or climbing the side of a cage to get a better view. Animals also demonstrate control when their behavior produces desired results or an expected effect (Englund), such as performing a learned behavior for a reinforcing consequence. Individuals exercise control over their environment by

making choices (Leotti). When a bird chooses to perform a behavior for an expected outcome such as flying to a trainers' hand or going into a crate for a food reinforcer, or even moving away from an aversive stimulus, the bird is controlling reinforcers.

Most trainers don't realize their covert desire for control over an animal is in direct conflict with the very notion of giving animals control. For some, a "Don't let him get away with that" attitude, raising their voice, or adjusting their body posture could be attempts to control. Even prolonging the use of prompts long after they should have been faded can be a sign of trying to control animals and their behavior. Giving up the inner attitude of control over an animal does not come easy for many people, especially when their controlling behavior has produced what they perceive as success. With a raptor secured to a trainer's glove, the trainer has control and the bird's choices are limited. A raptor on a creance has more choices and the trainer has less control. Take off all the restraints and the bird acquires a wide range of choices and the trainer has relinquished control over to the bird. This can be a scary and dangerous situation for both bird and trainer.

It may seem apparent that the act of free-flying innately gives birds more choice and control in their lives, right? But hang on... what about when a trainer limits an animal's choices, and provides only one way for an animal to earn a food reinforcer? We can picture that with a hawk on jesses or a parrot in a cage. But, what if the only way a free-flighted bird can receive any food at all is by flying to a trainer's hand? Without other choices available by which to earn reinforcers, training of this sort can be considered coercive (Alligood, de Fernandes, Goldiamond, 1975). Goldiamond stated that coercion may be associated with systems that take advantage of a critical state of need, such as food deprivation, making delivery of the reinforcement contingent only on a specific target behavior. He also wrote about the availability of choices and described that the more choices available to an animal, the greater the degree of behavioral freedom it has (Goldiamond 1975). B.F. Skinner wrote about "high degrees of freedom can be considered in situations where there is no aversive control of behavior." In other words, a raptor without jesses or a parrot with full flight would have higher degrees of freedom than a hawk that gets caught up by jesses in a bate or a parrot with clipped wings that crashes to the ground when it tries to fly.

Goldiamond went on to describe what he called *genuine choice*, where alternative contingencies are equally available and equally reinforcing. For instance, when training a hawk to step onto your glove for a food reinforcer, for *genuine choice* to be in play there would need to be an equal reinforcer available at equal effort for the bird to perform another behavior. Put differently, the hawk would be able to choose to step onto your glove for a dead mouse or it could choose to step onto a perch for a dead mouse.

With this information in mind, you might ask, "how are we supposed to train animals if we provide them with equal opportunities to earn reinforcers for *not* doing the behavior we want them to perform?" This seems counterintuitive, and not at all analogous to what happens in the wild. Animals need to perform specific behaviors to survive in the wild, and often don't have

any apparent choice in doing so, so why is this necessary in our programs? Is Goldiamond's concept of *genuine choice* really an option we should consider?

I suspect that information about *genuine choice* is a bit confusing to some, just as it was when I first read it. However, the more I thought on it, the more I started to understand the concept and began to realize situations where we *do* provide genuine choice. For instance, it is not uncommon for us to walk into a flight cage of several macaws and take a handful of pellets out of a bowl that they have access to all day, and call a macaw down for a training session with those same pellets as reinforcers. They choose to work for their regularly-provided food offered from a trainer's hand despite the fact that the same food is nearby on the table— a good example of contra-freeloading, i.e., an animal choosing to perform behavior to earn a reinforcer even though the same reinforcer is freely available (Neuringer, 1969).

Another example of genuine choice is seen in our flock of about 90 macaws (in groups of about 30 at a time) who fly a distance of over ½ mile to the rock structure where they get various nuts and pellets while the trainers do a short presentation. The birds then fly ½ mile back to their home enclosure where they receive a table-full of various food items. The birds that opt out of flying the ½ mile jaunt from their home enclosure to the stage still receive their food when the other birds return. They have a free choice (de Fernandes), meaning they have multiple choices to earn reinforcers, in this case, to fly or not fly, as food is available regardless of their behavior. Free choice is different from *genuine choice* in that free choice refers to having multiple opportunities to receive desired outcomes whereas *genuine choice* refers to having equal value reinforcers available for alternative behaviors achieved with equal effort. We also see the act of flying to the show area is in itself reinforcing, as evidenced in part by the number of birds that fly all the way to the stage only to sit in trees without bothering to come down for high-value treats. We also see birds that choose to play with enrichment items over eating food items when they return to the home environment. The food, the act of flying, or playing with enrichment are all examples of reinforcers for different behaviors the birds choose to perform... or choose *not* to perform.

Still, is it practical to think that we should adhere to Goldiamond's *genuine choice* principal that he wrote some 40 years ago? Some people seem to think so, as I see people occasionally recommending on various lists and other mediums that animals should have the choice and opportunities to earn reinforcers whether they perform the target behavior or not. People say you should reinforce for doing a behavior *and* reinforce when a bird says "No."

It's easy to imagine what would happen if you gave a hawk a mouse every time it flew to a perch instead of your glove when you are trying to train the bird to come to the glove. Although giving an animal *genuine choice* might work in some situations, it is not practical in all circumstances. That said, there is value in understanding this concept. Goldiamond went on to write that genuine choice, as well as coercion, should be considered in a matter of degrees, which Susan Friedman confirmed when I asked her opinion on genuine choice. We talked about considering the level of choice we provide for the animals we train on a continuum with genuine choice on one end and coercion on the other end of the continuum. By keeping

genuine choice as our ultimate goal, we are constantly reminded of the importance of providing choices anytime we train animals. By moving the needle on the continuum away from coercion and toward genuine choice we provide greater degrees of freedom of choice, control, and ultimately better welfare for our animals. Control is critical for healthy development, and conditions of diminished sense of control can lead to declining physical health, high frequency of stereotypic behavior, maladaptive behaviors, and reduced wellbeing (Leotti, 2010, Allgood, 2022).

How do we provide greater degrees of freedom when training animals? It is a long conversation that would require a book-length dive into the details to reveal the finer points. However, the basic synopsis focusses on one key ingredient: expert-level training skills. But, how do we operationalize that construct, “expert?” Generally, it takes years of experience to gain the skills and insights required to achieve such a high level of artistic expression that a person is recognized as an expert.

Author Jeff Goins said, *“You don’t get to call yourself an expert. It’s a term best used when describing other people, not yourself. It’s a title you should avoid using for as long as possible until not using it would be dishonest. Only then should you do it — when others are insisting you really are an expert and denying it sounds more like false humility than fact.”* When your peers call you an expert, for example, is when you might consider yourself an expert.

In writing about ‘false expertise’, Jessica Schmerler cites research that shows self-proclaimed experts are more likely to fall victim to a phenomenon known as overclaiming, or professing to know things they really do not. People overclaim for a host of reasons, including a desire to influence others' opinions—when people think they are being judged, they will try to appear smarter. (Schmerler, 2016)

Expert animal trainers are given the title because of what they do, rather than simply what they know. *Knowing* the science of behavior-change principals is an important quality found in most expert animal trainers, but it is the artful application of those principals that reveal true expert behavior. How does this apply to the concepts of choice and control related to free-flight birds? Below is a short list of the most important points:

1. Positive Reinforcement

Expert trainers use positive reinforcement to shape desirable behavior in the animals they train, though that does not necessarily mean negative reinforcement and positive punishment are never part of an expert’s interaction with animals. There may be times when a responsible person must take away control from a bird by holding a raptor’s jesses or stopping a macaw’s attempt to land on a guest. These are examples of interrupting and punishing a behavior for the safety of an animal or human. However, negative reinforcement is very rarely a strategy purposely used to shape behavior unless attempts at using positive reinforcement have failed.

2. Weight and Diet Management

Motivation for birds to perform behavior is influenced by a wide range of conditions including the time of day, past history, current temperature and weather, physical ability to perform the behavior, relationship with the trainer, weight, hunger, and a long list of other things. Unfortunately, some trainers put too much emphasis on hunger when training birds to fly free. The biggest problem with this strategy is... it works! Heck, it took me years to realize there were other ways to motivate birds than to just make them hungry, because making them hungry worked as far as my limited experience and naive goals were concerned. The falconry crowd I socialized with put huge emphasis on birds' weights ... one famous falconer, held in high regard by the entire community, use to set his alarm for 2:00 am so he could wake up and weigh his falcon each morning, and decide if he should feed her a few grams of food so she would be at just the right weight in the morning before going hawking. I finally came to realize there was more to falconry than catching game and more to working with birds than just making them do behaviors.

You can absolutely make a bird hungry and they will be more motivated to perform behavior, which in turn reinforces the trainer's behavior of lowering a bird's weight to make them hungrier when things go wrong. For some, the misguided focus on a bird's weight as an indicator of readiness for training can blind them to all of the many other variables that influence the bird's motivation.

Any novice trainer can lower a bird's weight to create motivation, but the more you lower a bird's weight the more you limit the bird's choices. As I mentioned earlier, if a bird has only one way to earn a reinforcer, coercion may be in play. The hungrier a bird gets, the more it focusses on doing anything it takes to acquire food. For some people, that's all they want. For others, providing high welfare is a goal in concert with all of their training priorities.

Expert training is evident in the behavior of the birds being trained. Where you find birds choosing to perform independent behaviors (looking around, preening, exploring various perches in a tree, etc.,) and then responding calmly to a trainer's cues and performing target behavior without signs of increased hunger, you will often find an expert trainer. Signs of increased hunger for a hawk might mean excessive mantling, vocalization, lashing out with their feet, hanging on the side of the crate or cage, and more. For a parrot it might involve incessant vocalization or "baby begging" behavior, ruffled feathers, head-bobbing, hanging on the side of the cage, and more.

3. Focus on the Process

It is common to see people so focused on achieving the goal that they forget the importance of the process it takes to get there. The process is where we create understanding. It is where a bird discovers they have choices and control in their environment and relationship with a trainer. More than the goal, it is the *process* that is the foundation for successful training and achieving lasting results. Unfortunately, some goals can be achieved through a poor process, such as working a bird at such a low

weight it only focusses on the food and doesn't even realize the condition in which the behavior was trained, such as, when training a bird to fly from the crate to a perch, you can isolate the bird in an area with little or no distractions and create high motivation through hunger to get the bird to do a behavior. Most birds in this condition will learn fairly quickly to leave the crate and go to the perch for a bait on the perch and then go back into the crate. The goal is reached. However, this is not the real-world condition where you would expect to work with the bird in the future. Without a strong history of carefully shaping behavior by progressing through approximations at the bird's learning pace and establishing trust and confidence with trainers and novel conditions, then generalizing the bird's behavior to more novel conditions, a bird is likely to either freeze or fly away the first time it comes out into an open area. Bolting off like that will be dangerous for the bird and frustrating for the trainer and may even encourage the trainer to further increase food motivation by dropping weight, when the real problem is poor preparation for working outdoors.

To avoid these challenges while preparing birds to reliably participate in public programs, it is best to focus on the *process* of training, which may involve:

- a. Developing a trusting relationship with the bird through positive interactions
- b. Teaching the bird to calmly step onto the hand for a food reinforcer
- c. Teaching the association of the cue with the behavior and reinforcer by asking it to perform repetitions of an easy behavior like walking down a perch or hopping to the hand when you point your finger or raise your hand as a cue
- d. Teaching the bird to go into and out of a crate without hesitation at its home facility
- e. Giving the bird control of the door when inside the crate, i.e., anytime the bird moves toward the door, the trainer will open the door
- f. Teaching the bird to stay comfortably in the crate while the door is closed and it is being moved to a new location
- g. Teaching the bird to calmly fly from crate to a perch at a distance of up to 20 feet without hesitation, then calmly back to the crate without hesitation
- h. Teaching the bird to come back to the trainer or crate from varying heights, (and flying down can be more difficult than other types of flights)
- i. Generalizing all of these behaviors to multiple novel areas, with increasing environmental distractions over time

Working through these steps may take a bit longer than just getting a bird hungry and encouraging it to fly to a perch. However, the investment in the process will have lasting effects on all future behaviors, such as when a bird gets frightened at an unexpected sound or event and flies off. A bird trained without a focus on the process described above may be less likely to fly back to a trainer, whereas a bird that has gone through

the training process above will be much more likely to return to the trainer even in challenging conditions.

4. Providing Choices

The provision of choice should be part of every training session we have with an animal. When training a parrot to fly to the hand, for instance, a trainer can start by handing the bird a desired food item such as a peanut for simply sitting on the perch. Next, the trainer can hold a peanut two or three feet away on the same perch and reinforce the behavior of walking across the perch toward the hand. Then the trainer can offer the hand for the bird to fly to or to step on to. By reinforcing the two easy behaviors (sitting on the perch and walking down the perch) before asking for a difficult behavior, the trainer is building behavioral momentum (Mace, 1988), which will generally increase the likelihood the bird will fly to the hand. Even after the parrot is flying to the hand reliably, a trainer can randomly reinforce the behavior of sitting quietly on the perch before flying to the hand. We call sitting quietly on a perch or at a station “calm attentive behavior” (CAB) and it is a foundation behavior we establish with almost every animal we train. Once the bird is flying free outside, you can continue providing choices by randomly handing the bird a treat for simply sitting on a branch or walking down a branch toward you.

When training a raptor to fly to the hand, providing choices is also an important part of the training program. Reinforcing CAB is often where we start and then taking a few steps across a perch might be another behavior that gets reinforced. With this behavioral momentum strategy, the hawk is more likely to step up onto the glove when the opportunity is presented. Next is the reinforcer for going back to the perch. In the early stages of training going back to the perch is a very important behavior that sets up another repetition of flying to the trainer. Repetition builds behavioral fluency—behavior that occurs without hesitation. Once the hawk is flying free outside, you can still provide choices by randomly reinforcing behaviors like flying to a branch or a stump for piece of food you have placed there. You can even toss a piece of food in the air for some hawks to catch.

Flying birds at high weights gives birds non-coercive choices such as flying to a tree to gain a nice view, experience sunshine or a gentle breeze, or (in the case of our macaws) forage on acorns, clip leaves off with their beaks, or just play with the browse.

Sometimes, birds will just go sit in a tree or other perch and refuse to come back. In these cases, there are reinforcers we do not control, such as a good view, cool breeze, or even avoiding an aversive experience that may be associated with previous history of flying back to the trainer. When reinforcers outside of our immediate control maintain the behavior of sitting in a tree, skilled trainers will develop a plan to out-compete with these reinforcers in order to motivate the bird to return to the trainer or go into the crate.

Outcompeting the reinforcers that maintain undesirable behavior can be very difficult, but for birds that have gone through the training steps above, the process is often much easier. Birds that have strong relationships with trainers and a solid reinforcement history with the basic behaviors will be much more likely to come back to a trainer even when other reinforcers are available that might maintain the undesirable behavior. Birds with strong reinforcement histories with crating behavior often will choose the crate over sitting in a tree. In fact, it is not uncommon for a bird with a good training history to fly straight out of a tree and into a crate when it is presented, even when they would not fly to a trainer's hand.

On the other hand, birds whose motivation is influenced mostly by hunger and have not had the experience of building strong, trusting relationships with trainers, or generalizing their behaviors to novel environments will very likely be more difficult to retrieve when they have flown off. Birds that have a history of small reinforcers when going inside a crate and rough-handling of the crate after they are inside are unlikely to go into a crate in a fly-off situation where daunting novel stimuli in the environment may decrease their appetite and motivation. Unfortunately, when birds choose to avoid coming back to a trainer, some trainers think the way to deal with this problem is to lower the bird's weight rather than improve their relationship and training process with the bird. This often leads them back to the very same thinking that got them into that position to begin with.

The macaws at our show demonstrate control at levels as close to *genuine choice* as I have ever seen an animal perform. Not only do they sit in trees on occasion, they often fly great distances—sometimes over two or three miles away—before coming home. There is no way for us to accurately know what motivates these birds to take these long trips, but we do know they are nearly always in pairs or larger groups, which I suspect gives them some form of confidence to explore and play at greater distances. These exploration flights teach our birds local landmarks that help them navigate home when they get lost. Because these birds fly at a healthily high weight, they are comfortable to occasionally explore their environment at some distance which is likely associated with their ability to find their way home. If these macaws worked at lower weights, they would be more likely to come straight home each flight, but less likely to have the skills or experience to find their way home if something startles them and they flew beyond their usual path.

Though we expect our birds to explore and play in trees on occasion, for other birds in different training programs, the behavior of a bird sitting in a tree for a prolonged amount of time can be associated with an avoidance or escape behavior that may be associated with their trainer. A trainer can be associated with aversive stimuli in the following ways:

- a. Holding a hawk's jesses or a parrot's toes and not allowing them to leave the hand after landing

- b. Giving a bird an inadequate type or quantity of food reinforcer directly after coming back to the trainer
- c. Rough handling of the crate or cage with the bird inside
- d. Not providing additional reinforcers after putting the bird back in its home environment

All of those things mentioned above, and more, are ways some trainers limit choices and take away control. A more productive approach starts with a strong relationship between bird and trainer and also involves a history of high value reinforcers for going into a crate, careful handling of the crate, and finally a strong history of high-value reinforcers, including enrichment items, when the bird gets back to its home environment.

Conclusion

Just how much choice and control does a free-flight bird actually have? Turns out, it may be possible that trainers have more control over a free-flighted bird's behavior than some may think. Though we will never know what a bird thinks, we do know what we see. Lowering a bird's weight will generally cause it to focus more on obtaining food and be more likely to return to you. Raising a bird's weight will generally make them more likely to choose to explore other reinforcers in the environment. Ergo, lowering a bird's weight may reduce their behavioral choices and control in their environment, which can lead to reduced welfare if done poorly. Increasing a bird's weight can lead to more behavioral choices and control, but can also increase the probability of a bird sitting out or flying off, which may also have the potential to reduce a bird's welfare. Finding the balance requires expert skills and a solid training process that includes creating trusting relationships, giving up control to the animal, providing choices toward the *genuine choice* side of the continuum, using positive reinforcement to shape desirable behavior and avoiding aversive situations whenever possible. "Training is simple, but it's not easy." (Bob Bailey)

References:

Alligood, C.; Friedman, S. *Operants*. April 27 2022, pp. 41–45.

de Fernandes, R.C.; Dittrich, A. Expanding the Behavior-Analytic Meanings of "Freedom": The Contributions of Israel Goldiamond. *Behav. Soc. Iss.* **2018**, *27*, 4–19, doi:10.5210/bsi.v27i0.8248.

Englund, M.D.; Cronin, K.A. Choice, Control, and Animal Welfare: Definitions and Essential Inquiries to Advance Animal Welfare Science. *Front Vet Sci* **2023**, *10*, 1250251, doi:10.3389/fvets.2023.1250251.

Goldiamond, I. Singling out Behavior Modification for Legal Regulation: Some Effects on Patient Care, Psychotherapy, and Research in General. *Ariz Law Rev* **1975**, *17*, 105–126.

Goins, Jeff, Writer. Speaker. Entrepreneur. Father of two. Bestselling author of 5 books. Read more at goinswriter.com.

Leotti, L.A.; Iyengar, S.S.; Ochsner, K.N. Born to Choose: The Origins and Value of the Need for Control. *Trends Cogn Sci* **2010**, *14*, 457–463, doi:10.1016/j.tics.2010.08.001.

Mace, M, Behavioral Momentum in the Treatment of Noncompliance, *Journal of Applied Behavior Analysis*, 1988, <https://doi.org/10.1901/jaba.1988.21-123>

Neuringer, A. Animals Respond for Food in the Presence of Free Food, *SCIENCE*, 1969,, Vol 166, Issue 3903, pp. 399-401, DOI: [10.1126/science.166.3903.399](https://doi.org/10.1126/science.166.3903.399)

Schmerler, J, You Don't Know as Much as You Think: False Expertise, *Mind & Brain*, January, 2016