Behaviour

The Help at Hand

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For many of us, there is no more evocative symbol of the spectacular diversity of animal life on this planet than that of Noah's Ark. The sheer number of ways in which the species are different from one another is truly wondrous. And, there is no greater embodiment or proof of this diversity than that provided by the members of the order Psittaciformes composed of more than 300 species of parrots. Parrots are so remarkably brilliant in colour and behaviour one should think they merit an ark of their own!

Yet, there is another wonder afoot in the Kingdom Animalia perhaps less evident but equally astounding. Quite the opposite of our enormous diversity is that which we all hold in common. What do whales, elephants, and songbirds have in common with over 300 species of parrots AND humans? It is the remarkable ability to learn, that is, to change one's behaviour as a result of experience.

As described by Paul Chance:

> Indeed, learning may be thought of as the crowning achievement of evolution. It is an evolved mechanism for coping with the challenges of a changing environment.
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> ... Learning is a different sort of mechanism from the inherited behaviour we have been considering. Learning does not give the species the tendency to behave a certain way in a particular situation; rather, it gives the individual the tendency to modify its behaviour to suit a situation. It is evolved modifiability. Only learning enables the individual to adapt to rapidly changing conditions. (Learning and Behavior, 1999, p.19)

The Natural Science Approach

Learning has been a subject of interest for millennia but it is only during the last 100 years that it has been studied using a natural science approach by behaviour scientists, often called behaviourists or behaviour analysts. As with other natural scientists such as palaeontologists, astronomers and biologists, the challenge for behaviourists is to explain phenomena by identifying the physical events that produce it. The phenomena that behaviour scientists work to explain are learning and behaviour.

The natural science of behaviour has identified many of the common processes at work that explain how animals behave. Although complex laws of behaviour continue to be investigated, a fundamental set of learning principles emerged decades ago which have stood the test of verifiability and utility with hundreds of species of animals in a wide variety of settings. Thus, while animals are genetically prepared to perform some behaviours and not others, the science of behaviour has shown that the underlying processes by which each animal learns to perform these behaviours are the same.

For example, birds are genetically prepared to fly and cheetahs to run; however, in all cases, it is the experience of performing the behaviour that ultimately predicts how it will be performed next time, if at all. This is called the law of effect, often stated as behaviour is a function of its consequences. It is the most fundamental of all the principles of behaviour. In other words, animals tend to repeat behaviours, which result in desired outcomes. Of course, the determination of what is desired belongs exclusively to each animal and may change from one circumstance to another.

Parrots Too

For lack of knowledge about the fundamental principles of learning, many people are utterly baffled by their parrots' behaviour. They describe their birds as inscrutable creatures who behave in completely unfamiliar and therefore, unpredictable ways. However, the more one knows about the science of behaviour the more familiar parrot behaviour will turn out to be. Let us apply just this one principle we have discussed, the law of effect, and see how it improves your ability to understand and predict parrot behaviour. To this end, I introduce to you my favourite fictitious parrot caretaker Grace and her popular parrot Periwinkle. Notice the when-then relationship between each behaviour and the resulting consequences which highlights the functional relationship between behaviour and consequences.

1. When Peri steps onto Grace's hand then she returns him to his cage.

Predicted future behaviour (PFB): Peri, who would rather be on top of his cage than locked inside it, will step onto Grace's hand less often.

2. When Peri bites Grace's hand then she puts down the phone and turns her attention back to Peri.

PFB: Peri will bite Grace's hand more often when she is on the phone.

3. When Peri whistles and chatters softly in his cage in the bird-room then Grace stays busy in the kitchen.

PFB: Peri will whistle and chatter softly less often when Grace is out of sight.

4. When Peri uses his voice loudly then Grace comes into his room to tell him to quiet down.

PFB: Peri will use his voice loudly more often to get Grace to come into his room.

In this light, Peri is not inscrutable after all. Although some people might label Peri dominant for refusing to step up, hormonal for biting, or obsessive for preservative screaming, our analyses suggest that Peri would be more accurately labeled an intelligent learner (with an unwitting teacher in Grace). Our predictions of Peri's future behaviour based on the sound application of the law of effect are not only reasonable but useful, as well: Each analysis reveals a clear direction for teaching strategies to help both Grace and Peri interact in ways more facilitative of successful companion behaviour. These are very simple examples which nonetheless represent some of the most common problem behaviours reported by companion parrot caretakers. More complex interactions can be broken down in much the same way.

There are many other important principles of behaviour to improve your understanding and ability to predict and influence parrot behaviour. Some of the principles clarify the function of individuality among learners, timing, consistency and intensity of the outcome in relation to behaviour; others clarify the function of dependency between behaviour and outcomes; and, still others have to do not with the consequences of behaviour but the events that set the occasion for the behaviour to occur in the first place, known as antecedents. It is essential to have this knowledge close at hand when working with parrots, or any other living creature. In my opinion, the fundamental principles of behaviour should be part of every grade school science curriculum.

Teaching Strategies

For companion parrot caretakers, aviculturists, and conservationists alike, one of the most important benefits of learning about learning is what this information teaches us about teaching. Understanding the fundamental principals of learning provides us with a core of invaluable strategies with which to teach parrots to live successfully among humans.

There are many well-validated teaching strategies that have resulted from the science of behaviour; however, in my opinion, the most significant contribution is the evidence that everything that needs to be learned can be taught without the use of physical force or coercion. To become proficient at teaching with exclusively non-forceful methods, one only needs to learn how. Strategies such as positive reinforcement, shaping, chaining, differential reinforcement of alternative behaviours, time-out from positive reinforcement and extinction will provide you with the very best tools the technology of teaching has to offer. Learning to use these tools effectively will take time, effort and an unwavering commitment to verifiable data as there are many more ways to misuse these tools than to use them correctly. However, the return on these skills once mastered will be well worth the investment.

Let's look back at our simple when-then examples of Grace and Periwinkle's interactions to see how we might use some of these tools to teach different behaviours by strategically changing the outcomes.

1. Positive reinforcement: When Peri steps onto Grace's hand then she talks to him and rubs his head feathers before returning Peri to his cage.

PFB: Peri will step onto Grace's hand more often for praise and rubs.

2. Time Out from Positive Reinforcement: When Peri bites Grace's hand while she's on the phone then Grace gently but immediately puts him down on a nearby perch.

PFB: Peri will bite Grace less often when she is on the phone to stay closer to Grace.

3. Differential Reinforcement of Alternative Behaviour: When Peri whistles and chatters softly then Grace comes in his room.

PFB: Peri will whistle and chatter softly more often to get Grace to come to his room.

4. Extinction: When Peri uses his voice loudly then Grace stays busy in the kitchen.

PFB: Peri will use his voice loudly less often to get Grace in his view.

Another important benefit of learning about learning and teaching is that you will improve your ability to assess the veracity of others' teaching strategies and advice. The informed person will quickly discriminate between force and facilitation and will know how to implement non-forceful alternatives to produce the desired results. Even among some people whose pearls of wisdom regarding behaviour are many, the pearls are often left unstrung for lack of a unifying set of principles from which to analyse, predict and influence the behaviour of parrots. This often results in a spray of fixes rather than the systematic behaviour intervention plans you will be prepared to implement.

Resources

There is a voluminous literature available to help you learn how to apply the principles of behavior and related teaching strategies to the benefit of you and your birds. Nowadays, with the limitless information dissemination power of the Internet, people no longer need to feel that they are strangers in a strange land when it comes to parrot behaviour or that there is a dearth of information available to help them.

The key to accessing this literature is to know what you are looking for. If you look for information on the scientific analysis of parrot behaviour, you are not likely to find too many resources at this time, although there are some good ones out there, for example, Steve Martin's articles, many of which can be found at www.naturalencounters.com and the comprehensive information at Bobbi Brinker's web site at www.parrottalk.com .

A century is a relatively long time to generate jargon related to the science of behaviour which sometimes makes it confusing to know what to look for when searching for resources. For example, the terms teaching, training, and conditioning have historically had different shades of meaning and have too often been used to imply a ranking of the presumed ability of the learner. That is, teachers teach children but trainers train or condition animals. As the learning ability of non-human animals continues to astound the rankers, such discriminations become less and less meaningful. I myself use the word teaching to describe my work with all learners whether they're feathered, furred, scaled or bare-skinned.

As you search for resources to learn about behaviour, look for key words such as behaviourism, behaviour analysis, applied behaviour analysis, learning theory, learning and behaviour, operant conditioning, positive reinforcement teaching and clicker or bridge training - just to name a few. What you are looking for is the basic information about the science of learning and behaviour as explained by those writers who themselves are the best teachers. This information will come to you in many forms and related to many different species of animals. I am absolutely confident that you will immediately recognize the relevance to parrot behaviour even when the explicit topic is the behaviour of children (Smith and Iwata 1997), carp (Chase 2001), or horses (Ferguson and Rosales-Ruiz 2001).

Valuable resources

A wealth of valuable resources can be found at the Cambridge Centre for Behavioural Studies web site at www.behavior.org Listed below are references to several excellent books and one magazine that have proven to be very helpful in improving my skills with parrots:

1. Pryor, Karen. (1999). Don't Shoot the Dog! The New Art of Teaching and Training. Revised Edition. Bantam Publishers.

2. Chance, Paul. (1998). First Course in Applied Behavior Analysis. Brooks/Cole Publishers.

3. Ramirez, Ken. (1999). Animal Training Successful Animal Management Through Positive Reinforcement by Ken Ramirez. Shedd Aquarium Publishers.

4. American Animal Trainer Magazine. www.animaltrainermagazine.com

5. Latham, Glen. (1990). The Power of Positive Parenting A Positive Way to Raise Children. P&T Publishers.

Conclusion

The purpose of this article is not to explain the principles of behaviour; rather it is to let you know about the help at hand. Scientific knowledge exists that is clearly relevant to your interest in parrots. The common concerns that

1. there is little scientific information to help you regarding parrot behaviour, and

2. parrots are inscrutable creatures that behave in unpredictable ways, are both inaccurate. It is also a grave inaccuracy held by too many people, that parrots require force or coercion to learn.

We often focus on the great diversity among our planet's animals. There are many amazing behaviours unique to birds in general and parrots specifically. The more we learn about those behaviours the better we will be able to predict and meet their needs. Such species typical behaviour includes subtle but communicative feather movements, body postures and eye responses. At the same time, there are many important similarities common to the members of the animal kingdom. The natural science of behaviour has demonstrated the applicability of a fundamental set of learning principles common to us all.

From conservation recovery efforts to keeping parrots as pets, learning plays a key part of absolutely every single interaction we have with our birds.

Gaining expertise in this area in order to analyse behaviour in terms of the fundamental learning principles and design and implement effective, non-forceful behaviour intervention plans will greatly improve your understanding of parrot behaviour and your ability to protect and provide for these most treasured creatures.

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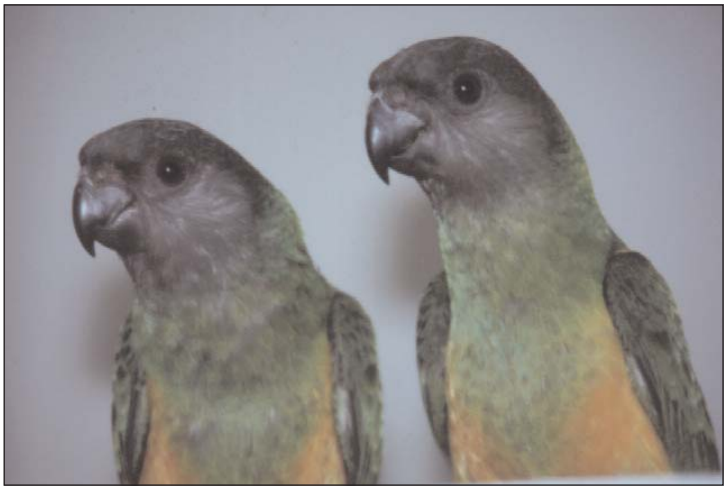
References

Smith, R. G., & Iwata, B.A. (1997). Antecedent influences on behavior disorders. Journal of Applied Behavior Analysis, 30, 343-375.

Chase, A.R. (2001). Music discrimination by carp (Cyprinus carpio). Animal & Behavior, 29 (4), 336-353.

Ferguson, D.L. & Rosales-Ruiz, J. (2001). Loading the problem loader: The effects of target training and shaping on trailer-loading behavior of horses. Journal of Applied Behavior Analysis, 34 (4), 409-424.

Young parrots, such as these Blue and Gold macaws, must be trained using only positive reinforcement. Photo: Rosemary Low



Many people are baffled by the behaviour of their parrots, such as these young Senegals (Poicephalus senegalus) Photo: Rosemary Low