Use of Positive Behavioral Techniques In Primates For Husbandry and Enrichment

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Operant conditioning is commonly thought of as the process that teaches pigeons to peck levers, rats to run mazes, bears to dance, and dolphins to leap. Whether you appreciate the product, the process is certainly a versatile one and, unbeknownst to most of us, a natural part of our everyday life. Our lives are filled with various stimuli, reinforcers are handed out regularly, and responses are shaped, increased, and extinguished at an alarming rate. It's surprising that a process so powerful, and so simple, is rarely viewed as a method for accomplishing our goals.

Keepers and caretakers seldom admit that they use operant conditioning in the daily care of their animals. Yet presenting an animal with its food after it moves from one room to another, is exactly that. In a simple form, but training nonetheless. It is perhaps a little too simple, since if the animal fails to comply, there are no series of steps to backtrack through to effectively problem solve and find solutions. My point is that operant conditioning is a powerful, versatile, and user-friendly tool that is rarely utilized to its full potential.

I began my career training marine mammals to perform behaviors for public demonstrations and shows. With those successes, other possibilities began to emerge. We used positive reinforcement to train voluntary cooperation with veterinary procedures. The training for presentation of tail flukes for drawing blood, inserting stomach tubes for contents sampling, and fecal tubes for uncontaminated fecal samples was achieved and maintained at an extremely high rate of reliability. Animals were conditioned to lie still for ultrasound, and pinnipeds tolerated the lancing and cleaning of abscesses, needle biopsies on suspicious lumps, and the insertion of a 3-inch spinal needle for blood sampling. All this accomplished with a whistle, some fish, and the skill to apply them effectively.

We approached socialization issues behaviorally, and found that cooperation and positive social interactions could be increased, and aggression and excessive dominance decreased, by training for these outcomes. Neurotic behaviors such as biting, frequent regurgitation, and swallowing foreign objects were diminished or eliminated. Training activities were utilized to increase physical activities, mentally stimulate and challenge the animals, and combat boredom. We maximized on the power of operant conditioning by integrating it into a practical and comprehensive approach to animal care.

Although much of the groundbreaking training has been done with marine mammals, the potential is there to work with almost any species, with varying degrees of success. Primates, as a group, offer great opportunities for positive reinforcement work. For example, our first primate project involved five drill baboons at the Los Angeles Zoo. Despite the presence of sexually mature animals, no breeding had occurred for over six years. Long-term observational studies showed very little affiliative behavior or positive social interactions between group members. Training activities conducted over a seven month period produced some dramatic results, documented by the Research Department. All forms of positive social interaction increased, while aggression decreased, during and after the project. The females were trained to voluntarily cooperate in artificial insemination techniques, and neurotic behavior by the youngest male was diminished.

Gorillas have been the subject of a number of projects, including training for enrichment, voluntary cooperation with veterinary procedures, introductions, desensitization to new environments, and addressing deficits in maternal skills. Other behavioral projects include such diverse species as orangutans, mandrills, lemurs, gelada baboons, and chimpanzees. Of greatest interest here, is the chimpanzee training project being conducted at the University of Texas, M.D. Anderson Cancer Center, Science Park in Bastrop, Texas (funding support through National Center for Research Resources grant RRO3589}. The purpose of the project is to integrate the use of positive reinforcement techniques into the care and management of the breeding colony of approximately 140 chimpanzees.

To accomplish this ambitious task, the Director of the chimpanzee facility, Dr. Michale Keeling created a trainer position, which was filled by staff member, Bob Thurston. My job has been to assist in the development of a comprehensive behavioral program, teach Bob the necessary training skills to work with the chimpanzees and staff, and to provide on-going consulting services on Implementation of the program. We have focused on behaviors that support husbandry and handling activities and relevant non-human primate veterinary procedures.

After a year in operation, the results are quite encouraging. Our accomplishments include the following behaviors: improved gating (moving from room to room) by individuals and groups; enhanced transport cage training; voluntary cooperation in urine collection, physical exams, blood draws, and presenting sex skin swelling for checking estrus state; cooperative feeding for enhanced socialization; and training for enrichment activities. Record keeping and documentation of techniques and results have been an important component of the program, as well as development of training protocols for individual behaviors that will be useful to other facilities. When necessary, special apparatus has been designed and tested to support procedures. Staff training of caretakers has begun with the increasing need to turn over completed behaviors to these staff members, and to begin to integrate positive reinforcement techniques into the day-to-day activities of the colony.

This project has given us a unique opportunity to demonstrate the effectiveness and versatility of operant conditioning techniques in a wide array of situations. Our goal is to continue to train new and useful behaviors, and to expand the number of animals trained in these behaviors. Ultimately, we hope to demonstrate the value of these techniques in enhancing the overall maintenance, care, and well-being of non-human primates in a captive setting.

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