

Enrichment: What Is It And Why Should You Want It?

Steve Martin

Natural Encounters, Inc.

9014 Thompson Nursery Road

Lake Wales, Florida 33853 USA

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INTRODUCTION

When we put an animal in captivity, no matter how beautiful and naturalistic the environment, we take away some of the most important aspects of that animal's being. We limit the opportunity for the animal to use its senses and adaptations to "earn" a living by taking control of almost every facet of that animal's life. Central aspects including what, when, and where to eat and sleep, with whom to socialize, even with whom and when to mate are often planned by curators, architects, behaviorists, geneticists, nutritionists, and veterinarians who work hard to provide them with the best of everything possible. Sometimes that means large quantities of the ideal food presented on the same stainless steel tray, by the same person, at the same time, in the same place every day. Life in captivity has the potential to be extremely predictable and therefore pretty boring for some animals. Enrichment was created to address this animal welfare issue. This paper will explore the concept of enrichment and its many positive functions and effects in a zoological setting.

WHAT IS ENRICHMENT?

Robert Yerkes introduced the concept of enrichment in the 1920's and animal keepers have probably been doing it all along (Mellen and Sevenich, 1999,). However it is only recently that enrichment has been elevated to buzzword status and practiced so purposefully at so many zoos around the world.

David Shepherdson (1998) described environment enrichment as "an animal behavior principle that seeks to enhance the quality of captive animal care by identifying and providing the environmental stimuli necessary for optimal psychological and physiological well-being."

The Enrichment Working Group of the Behavior and Husbandry Advisory Group, a scientific advisory group of the American Zoo and Aquarium Association, defines enrichment as being: a dynamic process which structures and changes animal environments in a way that provides behavioral choices to animals and draws out their species appropriate behavior and abilities, enhancing their animal welfare (BHAG, 1999).

Most enrichment programs today involve providing the animals with enclosures and novel experiences designed to stimulate and encourage species-typical behaviors. These opportunities include such things as pools and mudholes for bathing and wallowing, leaf beds and other substrates for investigating, foraging, and sleeping, and ropes and branches for locomotion and play. Novel objects and scents are often added to exhibits to stimulate investigative behaviors, and a wide variety of food presentation techniques are used to encourage foraging and other natural food acquisition behaviors.

The design of the exhibit is a large part of all enrichment programs. The naturalistic exhibits now being built at many zoos often provide great enrichment value for animals. Many exhibits are designed with the species' natural history in mind and target the expression of species-typical behavior as a goal for the exhibit. Although these exhibits are aesthetically pleasing, they do not always live up to their expectations. As David Shepherdson (1998) said "the role of enrichment is to ensure that the exhibits are naturalistic for both the viewer and the inhabitant."

These exhibits may offer the opportunity for animals to practice species-typical behavior but sometimes the animals lack the motivation to use the exhibit to its fullest potential. The lack of activity, overweight animals, aberrant behavior, and the well worn paths are poignant reminders at some exhibits that there is something lacking in the lives of the animals that inhabit them. In many cases, it is a lack of motivation. Enrichment incentives such as concealing food in remote areas, spreading urine or feces from other animals, or dispersing aromatic plants or other scents can encourage animals to investigate previously ignored areas of an exhibit, but cannot be considered the panacea. Another effective strategy for encouraging animals to make better use of an exhibit is training.

TRAINING AS ENRICHMENT

Positive reinforcement training creates a stimulating environment that gives animals control, an opportunity to make decisions, then the opportunity to experience the consequence of those decisions. Training gives an animal the ability to “earn” a living, a most natural and innate behavior.

Tim Desmond and Gail Laule (1998) state “training is teaching; being trained is learning. It is a problem-solving process that can easily be as challenging and rewarding as the most complex enrichment devise.”

In the 1950’s Heini Hediger used operant conditioning techniques to provide animals a means of “working” for a living. This “occupational therapy”, as he referred to it, is needed because captive animals have been denied the need and opportunity to engage in the tasks of survival i.e. finding food and avoiding enemies (Laule and Desmond, 1998). Alan Neuringer and others have shown that, if given the choice, animals will choose to work for their food even if the food is offered free choice. (Laule and Desmond, 1998; Mellen and Sevenich, 1999).

The benefits of training animals at zoos are far reaching. Here are just a few examples of how training has enriched the lives of animals and humans at zoos around the world:

Husbandry

Training can have a huge influence on how animal caregivers work with and care for their animals. Through training, animals can learn to eat different foods, socialize with conspecifics, make better use of their exhibits, learn new motor skills, and increase their confidence with novel objects and situations (Laule and Desmond, 1998). Daily tasks such as shifting from the exhibit to the indoor housing area is a common problem in the zoo community. A training program can eliminate many if not all of the problems some keepers encounter when shifting their animals. Training also provides valuable socialization experiences for animals housed alone. A good understanding and application of operant conditioning training techniques offers animal caretakers many opportunities to enrich the lives of their animals while dealing with a wide variety of husbandry challenges at the same time.

Animal Medical Care

The last few years have seem many advances in the field of animal medical care. One of the most dramatic is the training of animals to participate in non-invasive medical exams. Many, if not all, animals can be trained with positive reinforcement to participate in such things as full body inspections, weighing, ultrasounds, x-rays, urine collection, and injections and blood draws. It cannot be overstated how important training has been in the reduction in physical and mental stress in animals taught to willingly participate in these necessary exams.

Interpretation

I feel education is one of the most important aspects of conservation and something that most zoos could and should do much better. Six hundred million people visit zoos each year. How many millions of them leave without learning anything about the animals they have just viewed? Interpretive programs may just be the best, and possibly the only, educational message many zoo visitors receive while on their visit to the zoo. Far more than any

book, television, or teacher can convey, a close encounter with a live animal demonstrating species-appropriate behavior can leave a lasting impression in the minds of zoo visitors.

It would be healthy for zoo professionals to temporarily put aside their long held traditions of what they feel is “proper” for a zoo and view their facility from the visitors’ perspective. After all, it is sometimes these very visitors who are the users, the abusers, and the ones with influence in political arenas. In other words; the people we want to educate and persuade. For some zoological professionals, the word “show” is little more than a four letter word. However, to the zoo visitors, the word “show” means action, excitement, entertainment - the very reasons they come to our facilities in the first place. Few people come to our zoos to be educated, they come to be entertained. Entertainment can be something as simple as an elephant bathing in a pool, a bear tearing apart a log, or otters playing with their food in an enriched environment. However, when interpretation is added, the experience becomes a “show” in the minds of the guests and an excellent opportunity to educate for the staff at the zoo. Interpretive opportunities, or keeper talk programs, are becoming more popular at zoos around the world. I feel the next level of zoos will include these “shows” within the exhibits where animals are trained to practice species-appropriate behavior for interpretation.

Many educational programs at zoos these days are overloaded with natural history facts. Information does not equal education. These dissertations may impart some level of information but do they actually serve as a conservation education experience? Do they adjust attitudes and behavior in ways that encourage volunteerism, donation to conservation organizations, or encourage political action (Hutchins, 1999)? Interpretive programs should be much more than just reciting natural history facts and inundating our audiences with the travesties of our ecological assaults. Our program strategy should be to engage, inspire, and empower our audiences toward specific conservation goals. However, these conservation educational goals will not stick unless there is a bed of empathy in which they can take root (Sahn, 1996). How do you create that empathy? Through close encounters with animals.

I remember Bill Dennler telling me about the time a silver-back Mountain Gorilla charged and gently grabbed his arm in the forests of Rwanda. He said he will never forget the feelings and the emotions that ran through him. Craig Dinsmore talks about his experience 20 years ago where he sat in a small dingy and stroked the back of a Grey Whale. He called it a purely emotional experience. Others speak of moving experiences associated with meeting animals in the off-exhibit areas of zoos. I suspect most zoo professionals have had memorable experiences like these that are firmly etched in their memory banks. These are experiences that few people outside the zoo world ever get to realize. The closest most people come to charismatic animals is a visit to their zoo.

A very popular exhibit at many zoos is the orangutan exhibit. What is the purpose of orangutan exhibits at zoos? Conservation, education, recreation? There is very little conservation value in breeding orangutans in captivity as they are well represented, often hybridized, and will most likely never be released back to the wild. Michael Hutchins (1999) talks of the need for *in situ* conservation programs and the key to conservation being habitat preservation, not captive-breeding. The visitors to the orangutan exhibits rarely read the graphics to learn about these magnificent animals and therefore learn little from their visit to the exhibit. Their perception of an orangutan is often little more than a large monkey that likes to walk around with a burlap bag on its head.

Now consider what for some is a rather controversial experience at the Singapore Zoological Gardens: breakfast with Ah Meng. People pay to sit with the animal, share a plate of fruit, and have their picture taken. Before they have their encounter with Ah Meng they sit and listen to a presentation about orangutans in the wild. They learn where they are from - just an island away - what they eat, what pressures impact their survival, like the fires that devastate their homeland and occasionally spew smoke over Singapore. Then, they have a once in a life-time opportunity to sit with and touch this magnificent creature, then photographically preserve the experience for future reminiscing.

I remember the first time I touched Ah Meng. I also remember what that felt like, and smelled like, and what that all represented to me. The public feeding experience with Ah Meng has the ability to open people's minds and touch their sense of wonder. This experience may just turn a person's casual interest into a burning passion. It is from these types of experiences that some conservationists are born. Confucius said "tell me and I'll forget, show me and I may remember, involve me and I will understand."

Lastly, consider Ah Meng's life in captivity. Her trainers use only positive reinforcement and never physical aggression when working with her. She chooses to participate in the encounters with the public. She looks forward to the interaction and shows obvious signs of excitement and enjoyment when approaching the show area. Her life is full of novel experiences. She can certainly make choices and decisions that produce positive results, and she has control over her environment. Ah Meng is possibly one of the most enriched orangutans in captivity. Plus, she has touched and inspired thousands of people and taught them that orangutans are much more than just large monkeys that like to walk around with burlap bags on their heads.

WHY SHOULD YOU WANT ENRICHMENT?

The welfare of the animals is generally the first and foremost priority in an enrichment program. However, the positive effects of a successful enrichment program are spread across the entire zoological field. Consider the following reasons for having an enrichment program at a zoological facility:

For The Animals

The life of an animal in captivity is very different from the life of an animal in the wild. The captive environment can be rather sterile, and non-responsive. It gives little back. For a wild animal, around every corner is a new experience, a chance for a new encounter, an opportunity to make a decision, and an opportunity to learn from the consequence of that decision. No program can ever duplicate the natural environment. However, by incorporating enrichment programs into the daily routine for our animals, we get a great deal closer to the ideal.

Environment enrichment can provide opportunities and motivation for animals to practice species-appropriate behavior, can reduce stress and undesirable behaviors such as stereotypic pacing, encourage breeding and positive social interaction, and generally improve animal welfare (Shepherdson, 1998; Mellen and Sevenich, 1999). Enrichment also influences the physical, mental, and social well-being of animals, which often results in the overall health of the animal and may therefore be considered an integral component of a preventative veterinary medicine program (Baer, 1998).

Training animals for husbandry and medical procedures greatly enhances their life in captivity and all but eliminates stress once associated with shifting and medical exams. The days of hosing and herding animals into night quarters are nearing an end. Training animals to participate in medical exams has, in many cases, already eliminated the need to dart an animal with a potentially dangerous tranquilizer just to give it an injection or take its temperature.

For The Animal Caregivers

In zoos world over, people are realizing enrichment is not just for the animals. Enriching the life of an animal can be very rewarding for animal caregivers as well. Most animal keepers begin their career because of their love of animals and their concern for the future of life on this planet (Hutchins, 1999). They are rewarded simply by seeing their animals play, explore, bathe, or exhibit any other form of species-appropriate behavior. Enrichment strengthens the bond animal caregivers have with their animals. It encourages keepers to gain new insights into behavior and develop their observation skills as they evaluate the animals' interactions with enrichment opportunities. Enrichment can also provide keepers with new tools for managing their animals, such as training

their animals to shift from one enclosure to another, or participate in medical exams. Training also gives animal caregivers the tools and resources to explore other options for increasing the welfare of the animals in their care.

For The Zoo Visitors

People want to see healthy, active animals in zoos. They enjoy viewing animals playing with puzzle feeders, frolicking in pools, or investigating tree stumps. Zoo visitors often have a very anthropomorphic view of animals. They do not like seeing bored, inactive, and seemingly unhealthy animals. They want to relate to the animals having fun in an exhibit. People who see an animal exhibiting stereotypic behavior view it as anxious, bored, stressed, or frantic. An enriched environment can reduce or eliminate many undesirable stereotypic behaviors (Carlstead, 1998).

Training exhibit animals to perform species-typical behavior in an exhibit can create engaging educational experiences. These programs can be tailored to help people learn more about their connection with the animals they are viewing and our undeniable dependency on the natural world. These vignettes can showcase the animals in the enclosure exhibiting species-typical behavior such as brachiating, vocalizing, foraging, climbing, eating, etc. The goal of these vignettes can be to engage the visitors with the animal performing species-appropriate behavior, inspire them to care about or feel empathy toward the animals, and empower the visitors to take action toward conservation goals.

For The Facility

Most Zoological institutions have mission statements or statements of purpose that give guidance to their operation and set goals for the facility. Within these mission statements are words like education, conservation, and recreation. A successful enrichment program can address each of these important goals.

Exhibits become more engaging for guests when animals are active and exhibiting species-appropriate behavior. An active exhibit is entertaining, increases stay time at the exhibit, and may encourage visitors to read graphics to learn more about the animals. An enriched environment helps the visitors see that the zoo cares about their animals and is concerned about providing for their welfare. All these factors may lead to increased attendance for the zoo.

An active animal in an enriched environment helps people learn more about that animal's natural behavior. When interpretation is added to the equation, zoo visitors are able to learn even more about the importance of the species and how they can participate in saving the species through personal conservation efforts or supporting the zoo's conservation programs.

Enrichment can improve animal health and welfare which in turn may decrease veterinary costs, improve socialization and reproduction, and decrease the need for acquiring new animals. Enriched environments are very important to the success of reintroduction of captive-reared wildlife (Miller, B. et al. 1998; M. I. Castro et al. 1998).

Finally, more and more pressure is being put on zoological facilities to provide for the welfare of the animals in their care. The Accreditation Commission of the American Zoo and Aquarium Association has just approved enrichment guidelines as part of the accreditation process. These guidelines are now being edited and soon all AZA institutions will be required to have an enrichment program as part of their accreditation review (Hutchins, personal Communication). In the United States, environmental "enhancement" is mandatory for many non-human primates (APHIS, 1992) and other governing bodies around the world are now requiring enrichment at some zoological institutions. Beyond all that lies our moral responsibility to the animals in our care. Behavioral needs are not luxuries, they are requirements that we simply must provide. Captive animals have only what we

are prepared to give them (UFAW, 1990).

CONCLUSION

Enrichment may be the most important advancement in captive animal welfare in recent times. Enrichment strategies have greatly improved the psychological and physiological well-being of many captive animals. A successful enrichment and training program can enhance the life of the animals, engage and inform audiences, and empower animal caregivers to provide better husbandry and medical attention for the animals in their care. The question asked in the title of this paper should not be “why should you want enrichment” but rather “how can you develop an enrichment program and how can you support it?” The support of the Director of a zoo is critical to the survival of any enrichment program.

In reference to environment enrichment, Terry Maple (1998) states “we are limited only by our imagination and our budgets, and the former restraint has been overcome by leaps and bounds. I can only hope that committed administrators will identify the financial resources to keep pace with our opportunities. It is encouraging to note that environment enrichment is typically simple and cost effective to implement.”

Certainly there are costs associated with the design, implementation, and evaluation of a successful environment enrichment program. These costs are often more associated with staff time than enrichment device acquisition. However, considering the many benefits it can provide, how can anyone afford not to have an environment enrichment program at their zoological facility?

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