BARRIERS TO LIVE ANIMAL HANDLING TRAINING FOR ZOO VOLUNTEERS

By

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Signed: <u>Susanne Tygielski</u>

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ABSTRACT

Zoos and museums utilize docents, or volunteer educators, to help educate and entertain visitors through live animal demonstrations. Preparing volunteers to handle live animals is complex because volunteers must learn animal handling techniques, emergency protocols, interpretive material, be able to simultaneously show and monitor the animal, talk about it, take visitor questions, and be aware of safety concerns. Zoos are held accountable for animal welfare as a priority as well as volunteer and visitor safety.

This study investigated barriers to preparing adult volunteers to handle live animals at the Arizona-Sonora Desert Museum in Tucson, Arizona. Adult docents and training staff members were interviewed about their perceptions of barriers from the previous year's animal handling training. Ten individual docent interviews, two docent focus groups, and four staff member interviews provided information about animal handling training challenges.

Barriers included the resistance to change; specifically volunteers needed to recognize why changes in protocols were necessary so they would support changes. Volunteers expressed the desire to be part of the change with staff members rather than having protocols delivered to them. Miscommunication was a second barrier, originating from lack of consistent communication systems and volunteers feeling left out of the change process. Another barrier was volunteers' perception of authority in that volunteers invested time questioning staff about program changes based on staff qualifications rather than utilizing their time working with the animals. A fourth barrier was that volunteers shared that they felt pressure to perform or else they feel as though

they failed part of their volunteer job. Finally recognizing that volunteers learn in

different ways was a fifth barrier and many volunteers suggested the need to address a

variety of learning styles.

Adult learning theory provided a theoretical framework from which the barriers

could be investigated. Kolb's Experiential Learning Theory (1984) suggests that

volunteers need to have animal handling training lessons presented with different

teaching techniques or styles. Investing time into training staff about learning theories

and teaching techniques may circumvent struggles with volunteers learning new

techniques.

CHAPTER 1

INTRODUCTION

Zoos rely on close-up encounters with live animals to engage, entertain, and educate visitors. Live animal demonstrations or shows are one of the most popular attractions for visitors to the zoo (Kisling, 2001). While adults and children may be curious about wildlife viewed at a distance, these live animal demonstrations can provide the connection between humans and wildlife (Heinrich & Birney, 1997). Shows or live animal demonstrations can satisfy the curiosity, offer excitement and educate visitors all at the same time. For many people, a zoo encounter will be the only face-to-face experience they will have with wildlife (Kellert, 1996). As urban areas expand, the chance encounters with wildlife decrease. Many urbanites will only recognize those species that are nuisance animals like rodents or raccoons. The more disconnected urbanites become from the natural world, the less likely they are to protect wildlife (Kellert, 1996), which is important in preserving biodiversity.

Developing and maintaining live animal programs for zoo visitors, requires more personnel than can often be employed. Budget limitations necessitate the use of volunteers to reach visitors by demonstrating or showing live animals (Merz, 2004). Issues of concern when demonstrating live animals to the visitors include animal welfare, human safety of both visitors and volunteer animal handlers, and handling consistency for the animals. Institutions using volunteers face challenges of training the volunteer core and maintaining high standards to ensure health and safety of all parties involved. The level of technical skill required to properly handle and train wild animals is

extensive. Most wild animals have a lower tolerance for inconsistent handling compared to domestic animals (Bailey & Bailey, 2001). For example, demonstrating a hawk requires more consistency in methods of handling than walking the average pet dog. Therefore volunteers need to develop an understanding of how working with captive wild animals is different from domestic pets at home, as well as the actual skills of handling the animals.

Training volunteers to achieve high technical skills is an endeavor shared by a handful of types of organizations, most of which deal with human health and safety (i.e., volunteer search and rescue operations, fire fighters, and police). Adult volunteers may have perceptions about training and evaluation that do not promote development and improvement of their technical skills (Knowles, 1989). This study will explore the barriers to preparing volunteers to handle live animals for educational purposes.

Background

Zoos have been providing animal experiences to an interested public for centuries. The last several decades have brought deep changes; many zoos have transformed from concrete and chain link holding pens with pacing animals to naturalistic exhibits that encourage animals to show normal healthy behaviors (Hancocks, 2001). Animal welfare has become a central focus for organizations such as the American Zoo and Aquarium Association (AZA), which act as a professional accreditation group. The AZA has encouraged zoos to develop more humane methods of exhibiting and working with animals. Along with a shift in exhibitry, animal training also became necessary for both

exhibit and program animals. In the case of exhibit animals, training is necessary to maintain normal healthy behavior on exhibit. For example, training animals to search for their food enriches their lives and provide interesting behavior for the zoo visitor. Program animals are handled by staff members and volunteers for the visitors and require a high level of training to become comfortable in close proximity to people (Tygielski, 2004).

Program Animal Use at Zoos

Live animal demonstrations at zoos and nature centers have proven to be popular features because visitors are provided with up-close experiences with live animals without bars, wire, or any barriers. Live animal demonstrations at most zoos consist of two types: a volunteer showing an animal housed in a small container or volunteers holding animals (Dierking, Burtnyk, Buchner, & Falk, 2004). Many types of animals are left in their small travel containers and the volunteer talks about them while visitors view the animal. Visitors may be allowed to touch or in some cases even hold the animal. Some animals may be conditioned to perform an important behavior on cue, for example a parrot vocalizing when asked to do so. Some demonstrations are a dialogue or conversation with visitors while other demonstrations utilize a one-sided presentation or monologue.

Institutions vary in terms of demonstration settings and styles but a common thread is the utilization of volunteers to help create an enjoyable visitor experience. In some zoos, volunteers directly share the content information whether it is focused on

natural behavior or on intriguing facts about the animals. Other zoos utilize volunteers to prepare the animals for the demonstration or as participants handling and showing the animals.

Animal handling is one of the most popular jobs among volunteers (Wilson, C., pers. com.). However, volunteer positions may become difficult to fill when volunteers understand the full extent of unpleasant duties required by the job. Volunteers typically have to do mainly cleaning and manual work and only a small portion of the day may be devoted to handling and demonstrating the animals. Personal attitudes toward animals can greatly influence volunteer performance and effectiveness. The inherent ability of volunteers to interact positively with animals varies greatly as well. Recruitment and selection of the best volunteer candidates for the position are difficult due to many variables. Even people experienced in interviewing and hiring can have difficulty selecting qualified volunteer candidates. Often candidates with little experience in the job want to learn, but may not fully understand the commitment needed to succeed in the volunteer job. Also volunteer candidates may be interested in the volunteer job to become part of the organization, not necessarily to work in the specific job.

Volunteer Preparation at the Arizona-Sonora Desert Museum

The researcher has worked at the Arizona-Sonora Desert Museum (ASDM) for over six years as the Animal Behaviorist. The ASDM is fourteen miles west of Tucson, Arizona and is surrounded by the saguaro forests in the Tucson Mountain Park and Saguaro National Park West. William Carr chose this location for the Museum in 1952

recognizing that visitors would drive through the desert before arriving at the entrance gate. Once inside the Museum, visitors are treated to the sights and sounds of the features of the Sonoran Desert. Naturalistic exhibits house mountain lions, bobcats, javelinas, coatis, hummingbirds, rattlesnakes, tortoises, and many other animals. Cactus gardens and rare plant specimens from surrounding deserts are exhibited. Visitors can walk through a model living cave, exploring both a wet and dry cave environment. In an Ancient Arizona exhibit, the visitors can learn about fossils and geology of the Sonoran Desert. The mission of the ASDM is to help foster love and appreciation of the Sonoran Desert.

The Animal Behaviorist has supported the Museum's mission by developing and managing two different programs. Initially the job responsibilities of the Animal Behaviorist included volunteer training for both live animal handling, narrating animal demonstrations, and also animal care and training. Primary responsibility has been oversight of a trained bird of prey flight demonstration, the Raptor Free Flight (RFF). The RFF has expanded from five birds and seven volunteers caring for the birds to thirteen birds and over thirty volunteers. In addition to the volunteers who assist with care of these animals, the researcher has also trained and supervised the volunteers providing narration during the bird flight. After the bird and volunteer portion of the program were moving along successfully, the Animal Behaviorist was given the opportunity to revise the live animal handling training for other volunteers at the Museum, specifically the docents. Docents are volunteers who act as educators on

Museum grounds, working with visitors directly. Docents guide visitors on tours throughout the grounds, as well as share interpretive kits and artifacts, and finally demonstrate live animals.

In 1972, the docent program was started at the Museum. Docent responsibilities then included guiding school groups throughout the grounds and interacting with children. In addition, the Museum had such a small staff that docents performed many tasks that are now completed by staff. Docents helped with care of exhibit animals and botanical specimens, maintenance of grounds in terms of accurate signage and visitor safety to name a few tasks. The docent program began with twenty or so individuals and has grown to nearly 170 today (Long, M., pers. com.).

Shortly after the docent program began, docents utilized live animals for demonstrations on and off Museum grounds. Docents and their animals were ambassadors for the Museum, and working with the animals was an added benefit of becoming a docent. In addition to taking the animal on grounds for demonstration, the docents also maintained the collection, meaning that they fed, cleaned, and recorded notes about the animals. When docents began handling animals, they were given training on the natural history or the content material via lectures with accompanying written material. Little formal training on animal handling was provided (Foster, C., Wicker, C. & Mount, M., pers. com.). For example, the docents who commonly handled animals would share information with new docents about handling methods. Docents generally worked one day a week and each day of docents had different methods for animal handling. Each day of the week might pick up an animal from the enclosure with a

different method. Consistency in handling methods was minimal due to the high number

of different people involved and the lack of structure to formally share information.

Animals available to docents included several types of raptors or birds of prey,

parrots, non-venomous reptiles, amphibians, arthropods, and small mammals. Common

methods for handling animals years ago are currently viewed as means of restraining

animals for health reasons or veterinarian check-ups, not for educational exhibition. For

example, medium sized owls were chased in their enclosures until they could be grasped

by the legs and held. Owls were displayed with the docent holding the two legs and

wingtips firmly together. This grip restricted movement of the owl's body. Educational

messages to the visitors with this type of display were conflicting. On one hand the

docents discussed the beauty and adaptations of the owl, the idea that they play a valuable

role in the ecosystem and are worth preserving; yet the handling of the animal suggested

that the owl was something to dominate and control.

In the late 1980's, the Docent Program Manager provided a minimal level of

animal handling training on each animal to the docents. Animal handling training was a

component of the natural history content course or lecture where a brief written segment

on animal handling and a classroom demonstration of the procedure was provided. Staff

members who taught the handling portion of the class were themselves not always

comfortable with the animals, and this discomfort limited their ability to provide

thorough instruction for the docents. Staff members did include some handling criteria

on evaluations but not to the extent that a docent had to complete the evaluation to a

prescribed level of proficiency. Animals were to be handled in a consistent way,

however written documents left docents with too many options. Again, a large number of docents worked with a variety of animals with different docents utilizing the animal collection on different days of the week. As a result, inconsistency was still present. While some training by staff members was provided for handling the animals, minimal to no training was given on the care of the animals that was still a docent task.

In 1999, another shift was made with regard to the animal collection, and one part-time keeper was assigned to oversee the collection (Spurgeon, S., pers. com.). This change was made to improve the care of the animals, as one staff person would be responsible for the collection rather than many members of the education staff and many docents. In addition to having one staff person responsible, the docents no longer were responsible for the care of the animals. Additional volunteers were added to the crew to provide daily care for the animals, which was intended to free docent time to work with visitors both with and without animals.

Like many changes over the years, some of the docents were pleased to give up cleaning tasks but hesitant to give up interactions with the animal collection. Docents had been providing the care for the animals for a long period of time and perceived the duties as their job. Some docents were dedicated to the collection and began volunteering on an additional day of the week so they could serve as a docent on one day and work as an animal care volunteer on another day. Other docents focused on the politics of the situation and viewed the shift as a loss of power. Ultimately the addition of a part-time animal keeper increased the level of animal husbandry, but did not change the methods all docents utilized for handling the animals.

In 2000, the part-time animal keeper began instructing the education staff members on some animal handling basics. The plan was for the education staff members to become more technically skilled animal handlers and then be better prepared to assist the docents. The lack of a clear plan, with specified outcomes and accountability left the staff unclear and ultimately, frustrated. The animal keeper and education staff members did not always agree on or follow the same animal handling protocols. Unfortunately, depending on which staff member the docent contacted, he might receive different advice on animal handling because the staff members were not yet consistent in their methods.

The animal keeper expressed great frustration over the animals' poor behaviors, associated with unsound handling techniques. Physical or psychological stress during pick up or demonstration was a likely source of destructive behavior. The animal keeper and education staff members, managed by two different departments, were slow to make decision and commit to solving problems. Because of this an animal care committee was formed to brainstorm possible solutions to animal needs and welfare. The researcher was part of this committee as the trained bird expert. Implementation of suggestions was slow in the style of many committees, and often decisions were reversed when docents did not agree with the committee. In this case nearly all parties suffered as the animals still had major inconsistencies in handling, docents were frustrated over constant rules changes, and staff members were demoralized due to a fragmented working group.

After nearly thirty years of docent animal handling, staff members reorganized to provide a small team to work with the docents and animals on animal handling issues. Staff members provided detailed written documentation on each animal in terms of check

out from the animal building, packing, transporting, demonstrating, and emergency procedures. Large group classes, small group hands-on training, and one-on-one training with the animal and staff members were available for the docents. Each docent was required to complete written and practical handling evaluations. Certifications were dramatically different from any evaluation the docents had encountered at the Museum. If specific critical handling skills were not demonstrated, the docent was not allowed to work with the animal until those skills could be demonstrated. Many docents expressed disapproval of this new system because they did not understand the need and importance of higher standards of animal care and handling. During the first year of the implementation of this training/certification system, the progressed was delayed multiple times for docents to refute the new methods. Many docents believed that the animal collection was never in jeopardy or mishandled and there was no valid reason to institute more training for docents. Essentially, some of the docents felt they knew all they needed to know. However, a small yet strong group of docents defended the program, and the animal training team became more assertive in demanding more for the animals and for the docents. After the first year, many logistical changes were made regarding scheduling and reporting to docents on policies made subsequent seasons easier.

Currently the Museum continues to modify its docent animal handling training/certification to create a model system for zoo and nature centers utilizing docents or volunteers as animal handlers. Animal handling techniques have continued to change and improve over the past several years. An example of one technique that changes involves snake packaging. The snakes are transported in pillowcases inside coolers. In

past years the docent could handle the pillowcase from any part of the case once the snake was inside of it. However, the herpetology staff at the Museum pointed out that this practice can be dangerous as the snake could bite the docent through the bag. Now the protocol is that the bag can only be handled from the top of the case where it is tied so that the snake does not contact the docent's hand. Training with docents has changed but still does not meet the needs of all docents. Dissatisfaction with the amount of work required and the certification process still continues among a small group of docents.

Docent opportunities for working with animals require a high level of technical skill above and beyond that required by most docent or volunteer positions. Other organizations, like volunteer fire fighters and search and rescue, require volunteers to achieve a high level of technical skills have similar challenges compared to zoos (Schultz, 1985). Volunteers dedicated to achieving technical skills and commitment to continuing education are difficult to find (Martinez, 2004). Even more challenging is motivating and changing a group of volunteers that has functioned at one level for years but is suddenly required to achieve at a higher level. One component to maintaining a high quality group of volunteers is providing appropriate and meaningful continuing education designed for adult learners. While many potential barriers for training volunteers exist, a greater understanding of those could lead to more skillfully crafted training program.

Statement of the Problem

Non-profit organizations, like many zoos, have become increasingly dependant on volunteerism to accomplish key tasks and duties (Dierking, Burtnyk, Buchner, & Falk, 2004). As government funds for non-profit organizations diminish, volunteer labor increases in importance as these organizations strive to provide services on a decreased budget. Some volunteer positions require high levels of technical skills to be learned on the job. Challenges for non-profit organizations are to train, manage, and retain volunteers with highly developed technical skills (Yeung, 2004). Developing a program that produces highly trained and skilled volunteers, while also maintaining volunteer dedication and buy-in, is critical to this task.

More than many volunteer driven organizations, zoos rely heavily on volunteers to assist with maintenance of the animal collections as well as education of the zoo visitors. For example, the San Diego Zoo in California has 865 fulltime employees and 781 volunteers; the Brookfield Zoo in Illinois has 481 fulltime employees and 600 volunteers and Zoo Atlanta in Georgia has 191 fulltime employees and 284 volunteers (Cadigan, 2003). Training and managing qualified volunteers to work with live animal collections can be extremely costly and potentially dangerous to the institution if the correct supervision and training are not in place. Institutions need to create and maintain an effective system for training adult volunteers to successfully convey the institution's mission with live animals while maintaining high standards of welfare for animals and safety for visitors and volunteers.

Purpose

The purpose of this study is to explore the challenges and barriers to preparing volunteers to successfully handle live animals for demonstrations. Common themes from the volunteers may reflect methodologies that are best suited for managing and retaining technically skilled volunteers. Gaps in how volunteers are trained may become evident through this study, thereby clarifying the need to improve or change volunteer training. This study will document the successes and weaknesses of preparation methods used by one zoo with strategies to improve adult volunteer education and training for work with live animals. In addition profiles of volunteers with different animal handling skills may become apparent, thereby providing information to better structure trainings for the volunteers.

Theoretical Framework

Animal handling training at zoos involves teaching adults that come to the volunteer position with a wide variety of experiences and education backgrounds. The vast majority of volunteers handling animals are adults, with a large percentage retired and over forty years of age. Teaching adults has been an area of research for over seventy years (Merriam, 2001a). Most zoo educators have focused professional development on new concepts and topics related to the natural environment rather than teaching methods.

One of the earliest adult learning theories, andragogy, " the art and science of helping adults learn." was proposed by Malcolm Knowles (1990, pp. 28). Initially

Knowles sharply contrasted andragogy from pedagogy and assumed that children and adults learned in very different manners. Knowles in his early work describes pedagogy as a monolithic concept rather than today's idea of multiple pedagogies that may overlap with each other. Knowles later revised his theory or list of assumptions about how adults learn, but still referred to pedagogy as a single framework. Knowles proposed that overlap among some adult education models is possible, and the individual learner's past experiences and culture come into play regarding which model might best apply to them (Knowles, 1989). However he spent little time discussing the more broad idea of pedagogy which he framed as how children learn.

The traditional pedagogical model or teacher-driven model assumes that students only need to know what will be on the test rather than what they must learn to apply to their lives. Adults typically want to know why they need to learn something before they will learn it. With adult learners often the first task is to help the learners become aware of the need to know before they will invest the energy to learn (Knowles, 1989).

In the traditional pedagogical model the teacher's concept of the student is that of the dependent personality, and therefore the student often becomes the dependent personality. However, adults have the self-concept of being responsible for themselves. Yet, often when confronted with learning situations in the classroom, they revert to former days when they were students who sat back and waited to be taught (Knowles, 1975; Smith 1982). This duality creates a problem for adult educators in that they must treat the students as independent adults without letting them fall into a passive role in the classroom.

In the traditional pedagogical model the teacher is the one with the experience and the tools (i.e., textbooks, assigned readings, audiovisual presentations, etc.). Adults come to learning opportunities with a different quality and quantity of experience. A class of adults is likely to have a wider experience of backgrounds and goals (Knowles, 1989). Diversity of experiences can create a rich learning environment. In addition, adult learners are ready to learn if it is something they need to know to survive. Children are oriented to learning particular subjects. Adult learners typically are focused on learning particular tasks. In the pedagogical model the learners are typically motivated by grades, teacher approval, and parental pressure. Adult learners on the other hand are motivated by better jobs, promotions, and increased self-esteem.

Adult learning theory emphasizes that adults learn differently from children because of their differing amount of life experience. Adult learning principles from Knowles (1990) suggest that adults have increased autonomy or are self-directed, need to know what they are learning is relevant to their lives, have a broad base of experience upon which to draw, seek to learn what they believe is important regardless of what others may believe, and want to apply learning immediately. Additionally, adult learning is problem-centered rather than subject-centered. These principles suggest that adult learners need a variety of teaching methods that draw upon their previous experiences and also demonstrate how the information learned will be of use to the individual.

Another model of adult learning is the self-directed learning theory (Tough, 1967). This theory has different processes of learning depending on the philosophical orientation of the learner. Goals of this model include the development of the learner's

capacity to be self-directed, reflection of the learner on the learning process, and promotion of social action (Merriam, 2001b). Emphasis on different goals may change through a learner's lifetime depending on their philosophical orientation, which could also change as the learner grows.

Adult learners come with a mind, memory, conscious and subconscious worlds, emotions, imagination, and physical body, which interact with new learning (Merriam, 2001b). Current literature on adult learning theories employs the use of narrative to help learners better understand their own stories and learning journeys (Clark, 2001). Adult learners who are not in traditional classroom or even office settings may find narrative an extremely useful method to clarify to themselves how they view their opportunities, barriers, and pathways to learning. Narratives may also present a method of dealing with emotions about the learning process. Emotions and feelings play a critical role in the sense of self and adult learning (Dirkx, 2001).

Situated cognition, an inherently social process, is also being reviewed in the context of adult learning (Clark, 2001). With experiential learning the student may be instructed on how to complete a task, shown how to perform the task, but then ultimately must tackle the task on his own. Students learn in context of the practice and also from the group with which they are working. The adult learning process is much more than a system of information storage, rather it is about making sense of the world (Merriam, 2001b).

Finally cognitive apprenticeships propose that students learn from their own development, the development while working with peers, and the development of their

group of peers. Cognitive apprenticeship has phases including modeling, approximating, fading, self-directed learning, and generalizing (Hansman, 2001). With this model students are engaged while still having a guide at the early phases of instruction. Unlike andragogy, even if students are not self-directed learners in the beginning phases, they still have an opportunity to be encouraged along with the group. This model allows for more variation in learners. Each of the models has benefits to offer for adults learning new skills and ideas. All learners have differing levels of interest and motivation; reviewing more than one strict learning theory will provide application for volunteer training.

Andragogy, self-directed learning, situated cognition, cognitive apprenticeships and experiential learning are each different theories, some of which may overlap. Adult educators may look to these theories as guides to how to teach their students. Table 1. below lists similarities and differences of the theories.

Table 1. Learning Theory Characteristics.

Andragogy	Self-Directed Learning	Situated Cognition	Cognitive Apprenticeships	Experiential Learning
Student-driven	Student-driven	Student or teacher-driven	Student or mentor-driven	Student or teacher-driven
Task oriented	Task oriented	Task oriented	Task oriented	Task oriented
Students need to know why task is important	Students come to task with why it is important	Students learn importance while working on task	Students may learn why behind task or not	Students may connect on their own why task is important
Student interest in growth	Student interested in growth or experience	Student interest in growth or test orientation	Student interested in topic	Student interested in experience
Class or on-site	Class or on-site	On-site	Class or on-site	On-site

Research Question

What are barriers to preparing and educating volunteers (docents) to effectively handle

captive wild animals for visitor demonstrations?

Significance of the Study

Adult learning theory has been discussed in scholarly literature for over seventy

years. Practical application of the theory is enacted in universities and colleges but is not

commonly used in practical training sessions with adults at institutions like zoos and nature centers. Work with animals in zoos is becoming more scholarly. Volunteer training in many non-profit organizations is documented, however less so in zoo settings. An overall lack of information about volunteer training with live animals exists. This study will serve to help fill a piece of that gap about volunteer training methods and strategies for the future.

Definitions

Animal handling: Animal handling refers to people demonstrating or showing live animals to visitors of a zoo. Animal handling generally requires the use of an animal that is conditioned for program use or at least habituated to a show setting. Animal handling requires the individual holding the animal to have a high level of skills to keep both the animal and himself safe.

Program animals: Live animals that are utilized at zoos for up-close encounters for zoo visitors or students in classrooms. These animals are typically conditioned to be comfortable around large numbers of people, travel to a variety of locations on or off zoo grounds, and in some cases demonstrate behaviors on cue.

Barriers: For this study, a barrier was anything (physical or emotional) that might impede a docent's ability to learn animal handling skills. Animal handling training barriers might include teaching methods, trainers' abilities to teach or effectively communicate, unclear written documents, animal equipment (i.e., hawk gloves are too big or small, clips which

hold bird leashes are too difficult to manipulate, etc.), availability of animals, animal's behavior, trainer and volunteer interactions, volunteer's willingness to participate or practice, trainer and animal demonstration time, and coaching time with trainer, among others.

Summary

Zoos offer training for volunteers working with live animals and zoo visitors. Standards for acceptable animal handling techniques are increasing across the country. Zoos struggle to provide adequate training for the volunteers. Multiple barriers exist in volunteer preparation including limited staff time, lack of understanding about the training process, as well as possibly many other barriers. Identifying the barriers to volunteer preparation would allow staff members to modify training as needed. Reviewing and providing applications for adult learning theories will provide zoo educators with more options for successfully preparing volunteers who handle live animals.

CHAPTER 2

LITERATURE REVIEW

Human Connections with Wildlife

Biophilia describes the idea that humans are naturally drawn to and must affiliate with the natural world to be healthy (Kellert, 1993). Ecologists may consider this statement obvious, because humans are part of the ecosystem. To remove humans from the system that they naturally occur in seems foreign to trained ecologists. However, in hurried urban lives, the connection to nature can seem minimal and of little importance. Yet even extreme urbanites will seek out experiences with live animals. A recent example of urbanites fascinated by wildlife is the pair of red-tailed hawks nesting on a building ledge in Central Park. New Yorkers watched the hawks, season after season as the same pale colored male hawk returned to the same nesting area. Our history has always included contact with wildlife and animals and continues today.

Early humans had connections with the natural world both for utility and survival, like other organisms. As cultures emerged, humans utilized the natural world for enjoyment and cultural customs beyond mere survival (Kellert, 1996). Humans relied on wild animals as sources of food, materials, medications, sport, and for enjoyment among others. As early as 10,000BC, some wild animals easily interacted with human camps and eventually this interaction led to early domestication (Kisling, 2001).

With domesticated animals, humans could have safe and intimate contact with animals daily. Domestication also led to multiple uses for animals, for example ready sources of food, sport, and companionship. Even with contact with domestic animals,

humans have yearned for and been drawn to connections with wild animals. Zoological

institutions and similar organizations have always drawn large crowds. In the United

States zoo attendance was higher than any sporting event (Kellert, 1996). In North

America, over 100 million people visit zoos and aquariums each year (Sunquist, 1995).

In addition to visitors, zoos have also drawn people passionate about helping advance the

mission of the institution, by volunteering time working one-on-one with the animals.

Volunteers that come to zoos and nature centers to work one-on-one with live

animals come with many backgrounds and have a variety of reasons for giving their time.

Some volunteers enjoy the idea that they are furthering the mission of the zoo and

helping educate visitors about natural ecosystems; other volunteers enjoy the time with

the individual animals; others come for social contact with other volunteers and staff

members (Heaphy, 2001). Regardless of why volunteers give their time to zoos, they

have become a driving force for many live animals demonstrations and some institutions

would not have live animal encounters without them (Waters, L., pers. com; Jones, J.,

pers. com; Luna-Gardner, R., pers. com).

Preparing volunteers to present live animal encounters or interpretations requires

time and dedication from zoo staff. Live animal interpretations generally have a

volunteer with one or more animals at a station in the zoo, waiting for visitors to

approach and watch the animal while learning about it from the volunteer. Often the

animals have had conditioning and training to be comfortable around groups of visitors,

but they require standard handling techniques. Preparing volunteers to work with live animals is a topic most zoo staff express frustration about due to the limited success achieved.

The literature included here reviews the need for humans to experience wildlife; how humans have expressed this need, namely the creation and popularity of zoos; how zoos have made use of program animals to create a close encounter for their visitors; and the information known about how volunteers are prepared at zoos to work with live animals and the visitors.

History of Animal Collections From Menageries to Zoos

Humans accumulated knowledge about keeping animals from watching and living with wild animals. Knowledge people gathered about their natural surroundings including information on plants and animals became known as "folk ecology" (Raven, et al, 1971). Most animal knowledge was limited to the morphology of the animal, how it was similar or different from other animals, and also it's utility for humans. Written formal classification of animals did not occur until the 1700's, however it is likely people had their own system of grouping animals long before the formalized system.

Captive animals that were part of a "collection" were not kept until 3,000 B.C., with the earliest urbanized civilization. Collections of both plants and animals were coveted, with animals typically costing more due to the difficulty of transporting and maintaining them. Early collections were not specifically called "zoos" as that terminology was not developed until the eighteenth century (Findlen, 1989). Nearly

every culture has kept wild animals out of either a utilitarian necessity or because society was drawn to collecting animals (Kisling, 2001). The intense desire to possess animals is a common thread, but the reason why people must be near to wild animals varies greatly.

One reason to "keep" animals was for people to have a ready supply of food and work animals. Animals were first "kept" by people as early as 10,000BC with the first attempts at domesticating animals (Kisling, 2001). Domesticated animals changed human lives by both lessening the burden on hunters and workers, but also by allowing humans a new level of emotional closeness. The first species domesticated was the dog followed by other animals like goats, sheep, reindeer, pigs, cattle, llamas, horses, camels, elephants, ferrets, cats, rabbits, guinea pigs, chickens, peacocks, turkeys, pigeons, geese and ducks (Clutton-Brock, 1981). Domestication is a process that requires generations to be raised in captivity until suitable behavioral, physical and genetic changes occur. Often behavioral changes are those that make the animal calm in captivity and therefore less difficult to maintain in a sectioned area (i.e., enclosures, yards, etc.); physical changes might include selection for large animals if used for food; and genetic changes might include selecting females with multiple successful breeding seasons.

Similar to modern society, early urban growth and the mere development of communities led to decreased connection with wildlife. The likelihood of stumbling upon wild animals decreased as human structures were built and the wild landscape was changed. Wealthy families recognized the loss of connection with wildlife and created a means to maintain a connection with wild animals. Kisling (2001) describes the first animal collections of early, urbanized centers in Mesopotamia along the Tigris and

Euphrates Rivers about 3,000 – 2,800 B.C. For the privileged urbanites, live animal collections were luxury items and demonstrations of wealth and power. For the urban workers that left rural and farmland areas for work in the cities, these collections, open for public viewing, provided an opportunity to connect with wildlife. During this same time, fishponds were created both for enjoyment of the pets as well as a means to keep fish on hand for meals. Wild birds like cranes, ibis, herons, peacocks, and penguins were kept with the same intentions, as pets but also ready food for the table. Birds of prey and lions were kept for sport and again as a means to hunt food for the family. Royal families also had the first hunting reserves where elephants, lions, apes, ostriches, deer, gazelle, ibex, and other species roamed the gardens for entertaining guests and hunting.

The animals found in early European collections were viewed primarily as property. The owners were fortunate to have animals for food, a work force, but also as a status symbol. As each owner increased the size or diversity of animals, the next owner was pressured to create a bigger and better collection. Collecting trips were great adventures but ultimately placed animals from one wild land or ecosystem into an entirely unfamiliar location (Kisling, 2001).

In Asia, the first well-documented case of animal keeping was between 1,000 – 200 B.C. during the Zhou dynasty. Royal parks of the wealthy class were used to maintain an animal collection for food, religious ceremonies, entertainment, and Chinese combat between man and beast. Combat or the battle was the primary purpose for entertainment rather than actually killing animals (Hughes, 1975).

In the Empire period of Rome (27 B.C. – A.D. 476) spectator sports occurred that were games of animal versus animal combat and also human versus animal combat. Some of the animals used for these games included lions, leopards, ostriches, hippopotamuses, and crocodiles. These animal collections have been written about because of the large number of animals killed, but little information is available on how the animals were kept. In addition to this brutal use of animals, collections were kept by the wealthy for pleasure of watching wild animals.

Animal collections probably occurred in the Americas as early as Old World collections, but they did not reach their height until medieval times (Kisling, 2001). A well-documented case of animal keeping was Montezuma's menagerie. In the early 1500's, his collection included fish and waterfowl, aviaries, raptors, reptiles, and mammals. The birds alone required 300 men to care for and clean their areas, not including those individuals that cared for the ill or injured birds. The carnivores in the collection including mammals and birds required another 300 men to care for them. Some animals bred in captivity including snakes that were kept in pottery to lay their eggs and raise their young (Kisling, 2001).

During the medieval period animal collections continued and were held by monarchs, monasteries, and municipalities. Charles the Great, founder of the Holy Roman Empire, maintained a collection including elephants, lions, bears, camels, monkeys, and birds especially raptors. During this period falconry, the sport of hunting with a bird of prey became popular as both a means to put food on the table and a demonstration of one's status in society. Fredrick the II (1194-1250), Emperor of the

Holy Roman Empire, was an authority on birds of prey and falconry. He wrote *The Art of Falconry* (Reprinted 1943) that is reprinted and still considered a valuable text on traditional falconry and raptor biology. French nobility owned some of the largest collections at this time. Rene, Count of Anjou (1440) had a large collection on his estate including a lion house, a small mammal house, a flight cage for birds, a pond for water birds, ostriches, camels and elephants. The collection's organization is similar to early modern zoos. During this period, animal collections were private affairs in Europe shown to guests of the owner. General population saw the collection only during fairs when animals were used various acts.

In China during the Yuan and Ming dynasties (1271-1644), the first captive breeding and selection of traits was occurring with goldfish. Carp were kept in ornamental ponds or in earthenware jars within Chinese gardens. Keeping of goldfish was not limited to wealthy families. However, Chinese emperors kept extremely large collections for pleasure and hunting. Often their palaces were surrounded by meadows and wild places for animals. Great Kahn also practiced falconry and needed over 10,000 falconers to hunt the birds he kept (Needham, 1954).

By the 1800's professional collections were popular as scientific knowledge about species was increasing, as were various methods of care and transportation for the animals. At this time anything in nature, plant or animal, was worth collecting for scientific study. Particular species were known for each land mass and noted on maps.

For example polar bears represent arctic regions and birds of paradise and pouched animals represented Australia. Live animals were now normal cargo at shipping ports from the colonies and Europe (George, 1985).

Between the 1700's and 1800's was a dramatic switch from private and royal menageries to public menageries. During this time, the upper middle class grew in size and more menageries were collected. Some of these private menageries were supported through government funds. However in the United States, support began with the public (Hoage & Deiss, 1996). Collections established during the 1800's began calling themselves zoological gardens, zoological parks or simply zoos. In some cases, a zoological garden was considered professional with differences in staffing, facilities, and programs as compared to a menagerie. Education and science became the focus of the collection above entertainment, another way that zoos were distinguished from menageries (Kisling, 2001). Currently the American Zoo and Aquarium Association (AZA) defines zoos for the purpose of accreditation standards as:

> A permanent cultural institution which owns or maintains captive wild animals
> that represent more than a token collection and, under the direction of a
> professional staff, provides its collection with appropriate care and exhibits them
> in an aesthetic manner to the public on a regularly scheduled basis. They shall
> further be defined as having their primary business the exhibition, conservation,
> and preservation of earth's fauna in an educational and scientific manner
> (Cadigan, 2003, pp. 318).

Less information has been documented about zoos and animal collections in the United States compared to European countries. In the 1700's native wildlife was shown in informal animal shows in village town squares or in taverns. The owners of the animals would show them, collect donations from the audience, and then travel to the next town. After 1780, there were multiple traveling menageries that visited New York with exotic fauna including tigers, orangutans, sloth, baboons, buffalo, crocodile and other animals. In 1796, the first elephant to come to America was shown in New York (Hancocks, 2001). After her arrival in New York, she traveled to many cities to greet paying customers. The exhibitor was one of the few in that time who was able to recover the money he spent shipping the animal to the states.

While zoological gardens patterned after the Jardin des Plantes in Paris were suggested for the United States as part of a larger national science institution, it did not happen in the early 1800's. Then in 1859, the Zoological Society of Philadelphia was chartered to establish a large living collection. The emphasis of this early zoo was to be education and science, not just entertainment like local menageries. Movement away from entertainment at the animal's expense was begun, and this zoo was the first on a pathway that led to some of our current zoos in the United States.

Beliefs About Animals in Captivity

Zoos create a world that can bring out the best and worst in humans. Hancocks (2001) argues that zoos "…enclose and confine the most exquisite masterpieces of evolutionary design in ugly and sometimes ludicrous environments, displaying and

dishonoring beautiful creatures against backdrops of soiled brickwork and concrete" (p. xvi). The human need to maintain wild animals in captivity is strong regardless of zoo conditions. Zoo supporters defend the right and obligation of zoos to maintain animal collections for visitors. The desire for human connection with wild animals is so great that even these desperate conditions have not stopped zoos.

The People for the Ethical Treatment for Animals (PETA) has been in opposition of zoos for decades stating that animals should not be held in captivity (PETA, 2005). The organization contends that animals in zoos are mistreated, held in enclosures that are not suitable and provided inadequate mental stimulation. Animal abuse has been targeted as well as the larger question do humans have the right to contain other living beings.

Lincoln Park Zoo in Chicago, Illinois was the focus of debate in the spring of 2005 due to multiple large animal deaths where animals were kept in inappropriate enclosures (Gustafson, 2005). Critics of the zoo believe that the animals were kept in a climate unlike their natural one. For example, the African elephants would not naturally live in a cold-weather climate like that of Chicago. Critics of the zoo also believe that the small enclosures were factors in the elephants' deaths (Biederman, 2005). Three Francois langurs, two elephants, two gorillas, and a camel all died within six months at the zoo, which the critics state is a national record (Hernandez, 2005). The People for the Ethical Treatment for Animals (PETA) suggest that maintaining animals in captivity serves little purpose (PETA, 2005). Zoo critics view the deaths at Lincoln Park Zoo as unnecessary and do not appear to value the role that the zoo can play in a person's life in terms of a human-animal connection.

Zoos can be places of wonder and bridges to the natural world. Trends over the last twenty years have carried zoos from cages and bars to naturalistic habitats with space for animals (Kisling, 2001). Most zoological organizations have made or are making the shift from enclosures that look cell-like to naturalistic exhibits, as well as increasing the standards of physical and mental care for the animal collection. In addition, visitors have been encouraged to focus on a trip to the zoo as a fun day, but also a learning opportunity and connection with wildlife. Learning about wildlife is one of the primary functions of zoos. While critics may contend that keeping animals in captivity is in conflict with teaching people about wild animals, it may be the best method. Educators who prefer immersion for their students might prefer to take zoo-goers out into the wilderness for a camping experience in the wild. But the reality is a half-day trip to the zoo has the potential to educate thousands of people compared to the few families who might show interest in a deeper immersion experience. Zoos have their place in terms of environmental and wildlife education.

Animal enclosures and care protocols have an impact on people's perceptions about zoo animals in captivity (Maple, 1995). Zoos have the challenge of balancing the animals' needs with the zoo visitors' beliefs about how animals should be kept. To maintain funding and support, zoos must consider visitor beliefs about animal exhibits and care regardless of whether those beliefs are appropriate for the animals (McManamon, 1993). If visitor ideas about animal care are not feasible due to animal needs, finances, or other reasons, these ideas must be addressed to ensure visitors remain supporters of the zoo. Messaging or signage in the zoo must convince supporters that the

animals are well cared for in the zoo setting (Hancocks, 2001). In other words, for visitors who may be uncomfortable with the idea of captive animals, excellent care standards and appearance may be able to convince or at least prevent visitor upsets about the animals.

Zoo staff must be dedicated to keeping animal enclosures, demonstration areas, exhibits and animals in excellent condition. Zoo animals should behave similarly to their wild counter parts without abnormal or stereotypic behaviors (Hediger, 1969). Animal husbandry should be based on the natural history of the animal to ensure its basic needs are met (Maple, 1979). Natural history information provides animal care staff with specifics on food type, quantity, availability (how and where it must be provided), how water must be given, types of self-maintenance items (branches to sharpen claws and teeth, etc), as well as resting locations (whether it be a tree, stump, rocks, etc). Often the natural history information needs to be modified for captive animals, as it is not always feasible to provide exact replicates of what is available in the wild. In addition, science comes in to play with diets and nutrition because captive animals at their best are rarely exercised as much as wild animals. Whatever modifications are made, the natural history of the animal provides the foundation for the captive management plan.

Zoo supporters and the general public may have a different vision of what "animal well-being" is compared to the vision of zoo staff. Novak and Drewson (1989) suggest this definition that an animal may experience well being if it is free from excessive distress most of the time, is in good physical health, exhibits a substantial range of the species-specific repertoire, and is able to deal effectively with environmental

stimuli. This definition is complex allowing many points for argument with those individuals who at the core, disagree about the need for animals in zoos.

Well-being of an animal may be defined for each individual species, but animal caretakers are more familiar with distinct behaviors of an individual animal. What an animal caretaker observes as normal and healthy for an animal may appear frantic and upset to the visitor. For example, in mating season courting rituals might appear like the male animal is in distress to an uneducated visitor. Zoo staff may recognize the animal's behavior as perfectly normal for the season. Some of the discrepancy about animal well being may be due to lack of education which falls on the zoo staff to educate its patrons. Similar confusion can arise over physical health, range of behaviors, and dealing with the animals' environment. Visitors and critics of zoos need to be educated by zoo staff about what is "normal" behavior of an unfamiliar species (Johnston, 1988).

Cement floors with chain link walls were the typical cages from zoos long ago. Naturalistic exhibits became fashionable and animals were housed in enclosures with artificial rockwork and plants to mimic a scene in the wild (Hancocks, 2001). Latest zoo creations are immersion exhibits where the visitor is transported and surrounded by animals in a model of their habitat. So far immersion exhibits have been restricted to rainforest ecosystems. Visitors wander along boardwalks and see live animals, artificial and live plants, rockwork, waterfalls, fog and often hear thunder. Though the experience may be like traveling to a new land, educational impact may not be any stronger than in traditional naturalistic enclosures (Sanes, 2004). The simulation of a rainforest tends to impress visitors more than what is actually in the exhibit. Therefore visitors leave

impressed by the amusement park style but conservation messages lag behind the wonder of design and planning for the exhibit. The exhibit has become the focal point rather than the life that survives within it (Transparencynow, 2004). This type of exhibit demonstrates an unintended message where the building actually takes away from the mission of the exhibit. With adequate educators in the exhibit, the visitors' attention could be refocused, but ultimately the close contact with animals may not be achieved in this kind of exhibit.

Studies have shown that animal exhibits influence visitors' impressions about zoos (Maple & Finlay, 1986). Reasons to move toward naturalistic exhibit designs for the visitors include appealing to visitors' emotions about animal well being and happiness, but more importantly as a means for educating visitors about the ecosystem (Fielder & Wheeler, 1985). Old style zoo caging left visitors with an impression that the animal was an isolated being rather than a part of a larger whole. Naturalistic exhibits, even without any signage or complimentary educational components, encourage visitors to think about the needs of the animal in its natural environment. However the immersion style exhibit may hold no added benefit without adequate staffing to focus visitor attention to the animals and how they are part of the ecosystem.

In terms of the animals' well being, naturalistic exhibits have helped staff members make the transition from working with readily available animal furnishings to thinking creatively about best furnishings. Exhibit designs began with the natural environment and allowed animal caretakers to consider how an animal utilizes various components of the environment. Creating more complex exhibits with more three-

dimensional aspects (i.e., enrichment that is hung in space rather than set on the ground or hung from the wall) has increased a wider range of normal species behaviors, decreased abnormal or stereotypic behaviors, and increased reproductivity in some species (Clark, Juno, & Maple, 1982; Maple & Finlay, 1986; Snowdon, 1991). All of these measures indicate that the shift toward naturalistic exhibits is a healthy one for captive animals.

Animal caretakers often use enrichment activities to enhance the lives of captive animals. While wild animals may spend half or more of their time hunting or foraging, zoo animals do not have that burden. Yet easy access to food may not be entirely beneficial for zoo animals as it leaves a large portion of their time free, unlike their wild counterparts. Enrichment can be in the form of scattering food in hard to find places, leaving food whole to be ripped apart by the animal rather than chopped into bite-sized pieces, or food can be placed in unnatural containers that challenge the animal on how to get to the food. These forms of enrichment are healthy for the animal, but also send messages to the zoo visitors that the animals' needs are well met. Most zoo visitors delight in watching animals work with and play with enrichment items, whether they contain food or other satisfaction for the animal.

Program animals, or those used for educational purposes at the zoo or at local schools, have different challenges (Kreger & Mench, 1995). In most zoos, these animals are housed in smaller holding enclosures without the naturalistic exhibit area. Enrichment may be limited to the program time when the animal is out with visitors or school children. Exercise time may be non-existent (Maple, 1995). Program animals are

exposed to a greater level of stress than exhibit animals due to the nature of their work, that many of them travel to a different classroom each day of the week. The perception about this class of animal could be that they are still facing the struggle of the chain-link and concrete cage, with limited natural area, infrequent enrichment, and an increase in stressful conditions.

While the perception may be that program animals do not receive the same level of care, enrichment, and daily freedom that exhibit animals enjoy, it may not always be true. Program animals at different zoos have wildly varying schedules. Some institutions may merely move animals from small holding areas, to travel containers, show them and then return them to their holding pen. However many zoos are making shifts to include wild animal shows or demonstrations. Some program animals are moved from their holding enclosure and are taken to an arena or show area where they can demonstrate their athletic abilities. For example, bird shows often afford the animals time to fly free outdoors where they can experience the wind, sights, and sounds of wild flight. Cat shows often give the animals opportunity to demonstrate their jumping and balancing skills. With most zoo shows, the animal has practice times to work as well as the performance for visitors. Animals therefore have exercise time like those in the exhibit and often a larger and more enriching area to roam.

Program animals are conditioned to work in environments with lots of stimulus. What might be stressful noise, movement, or lights to an exhibit animal are part of a normal day for a program animal. Generally program animals begin conditioning as very young animals (not weaned, fledged, etc.) and are raised in an area like that where they

will later be demonstrated. For example, studies have shown that with frequent exposure

to noise or handling green anoles, snakes, rabbits, and chicks can become less fearful

(Bowers & Burghardt, 1992; Kersten, A., Meijsser, F. M., Metz, J. H. M., 1989; Gross &

Siegel, 1982). Program animals receive early conditioning, with minimal and then

greater exposure to noises and handling, and therefore are less stressed by the

demonstration environment.

Training or conditioning can provide many benefits to program animals including

decreases in atypical behaviors, lowered fear responses while demonstrating animals,

ability to exercise the animal safely, minimal manipulation for routine veterinary care,

and the ability to monitor the animal's health more closely. From the animal perspective

it is critical that the handlers all use a similar technique. Trainer or handler turnover can

result in behavioral abnormalities such as regurgitation, stereotypies, and inactivity

(Laule, 1993). Therefore it is critical that zoos with program animals generalize the

animals to multiple handlers so that the animal is not bonded to one individual, and

unable to work with others (Kreger & Mench, 1995). Generalizing animals can be a time

of stress as different individuals may have slightly different handling methods.

Consistency in handling is critical for the animal to maintain its good behaviors (Bailey

& Bailey, 2001). Working with multiple staff members, paid and unpaid, it is important

that each person use identical techniques.

American Zoo and Aquarium Association

The American Zoo and Aquarium Association (AZA) was formed in 1924 as a branch of the American Institute of Park Executives and in 1971 became an independent corporation to better pursue and further expand its involvement in conservation, science, and education. Objectives of the professional organization include promoting the welfare of zoos and aquariums and their advancement; foster continued improvement of the zoo and aquarium profession through the development of high standards; aid, foster, and engage in the exchange of zoo specimens; and advance public education on the need for wildlife conservation and preservation (Cadigan, 2003). With the strong desire to have animals in captivity, but also the ethical debate about whether it is appropriate for animals to be kept, zoos have been forced to justify their existence. Zoos now justify their existence with the four pillars of recreation, research, conservation and education.

The AZA requires each accredited institution that utilizes program animals for education to draft a philosophical program animal policy. The researcher has created this policy for the Desert Museum and it can be found in Appendix A. The document explains policies that are utilized at the Desert Museum such as compliance with the United States Department of Agriculture's Animal Welfare Act as well as meeting or exceeding recommendations from each AZA Taxon Advisory Group. Animal welfare and human safety concerns are the focus of the document as well as how and why live animals are utilized for demonstration.

Conservation Message and Zoos

The two main purposes identified by the AZA for why visitors attend a zoo are recreation and education (Morgan & Hodgkinson, 1999). Zoos have been criticized in the past for emphasizing recreation and aesthetics without considering education (Kellert, 1979). Modern zoos have shifted to a more education-centered mission perhaps as backlash against criticisms in the 1970's (Morgan & Hodgkinson, 1999). Zoo staff recognized the need to be committed to educating zoo visitors long before the public outcry of the 1970's. In the 1930's Claude Leister was hired as the first curator of education at the Bronx Zoo (Hancocks, 2001). However the movement of increased emphasis on education at zoos across the United States was slow and inconsistent.

Based on a study of American's beliefs and attitudes towards animals, Kellert found that people used zoos in one of four ways (1979). Thirty-six percent of visitors used the trip to the zoo to educate their children. Twenty-six percent of visitors went to the zoo to enjoy the recreational aspects with family and friends, while 25% of visitors went to satisfy a personal fascination with animals. The last 11% enjoyed their zoo visit as a way to be close to wildlife. In an AZA funded research project, visitor reasons for coming specifically to the focal museum in this study were primarily for reflection and personal interest (Heimlich, 2004).

The AZA created a Conservation Education Committee to draft a document outlining conservation messages that zoos should be speaking about with their visitors.

The document has eight main ideas with supporting information under each broad topic. Zoos can include these broad ideas across the entire zoo visit, or in some cases approach all eight in an educational program or in signage.

The guidelines from the Conservation Education Committee include statements about all life being part of an ecosystem and humans are integral in that system. Healthy ecosystems provide services and benefits for all. Humans require a connection to nature that will inspire the choices made that impact future generations. Dramatic changes in ecosystems are occurring because of human activities. Humans are responsible for leaving a healthy ecosystem for future generations. Through informed actions, humans can impact the ecosystem positively. Zoos can promote conserving ecosystems and positive action for the natural world. These guidelines suggest the need for connecting humans with the natural world before trying to make a plea for conservation. The assumption here is that the average zoo visitor is so disconnected from the natural world that they do not recognize the benefits of conservation for their own family.

The Conservation Education Committee of the AZA also developed a position statement that supports the use of program animals as powerful educational tools. The AZA (2004) recognizes that program animals can lengthen learning periods, increase knowledge acquisition and retention, enhance environmental attitudes, and create positive perceptions about zoo animals. Robert Sommer (1972) wrote in Natural History that a need for a systematic inquiry to determine what zoo visitors learn about animal behavior and environments is needed. He stated there was a need to learn about how the zoo

actually helps develop a proper environmental ethic. Program animal use is increasing at zoos and may be one area to explore both in terms of visitor learning, environmental ethic and effectiveness of teaching with animals.

History of Program Animals in Zoos

Zoos visitors want the opportunity to interact or be close to zoo animals and talk with zoo professionals (Snyder, 2004). Enormously expensive zoo exhibits may not be as fascinating to the typical zoo visitor as the chipmonk that approaches them at the picnic table. Differences between the exhibit and the chipmonk are the close proximity to the animal and the ability to interact with it. Interactive exhibits, where visitors have the opportunity to feed animals, like lorikeet aviaries or duck ponds are among the most popular because visitors stimulate the animals to move thereby creating direct personal responses (Fiedler & Wheeler, 1985). Finally the opportunity to talk with zoo staff, whether paid or unpaid, holds visitors' attention at exhibits as well as at animal demonstrations (Hancocks, 2001).

Educational "shows" or demonstrations are considered non-formal learning constructed by the education staff members and volunteers. Program animals unlike exhibit animals allow visitors to get closer and often interact with the person handling or demonstrating the animal. While the average zoo visitor spends about 30 seconds to two minutes at exhibits, they may spend as long as 20 minutes at an animal demonstration (Bitgood, et.al., 1988). Povey and Rios (2002) found that visitors to view animals three to four times as long when they were handled versus on exhibit, which is not as dramatic,

but still provides a recognizable difference. Therefore time at demonstrations represents a captive audience in terms of learning time and education. In addition, program animals allow the educator to personalize the information that exhibit signs cannot do alone (Churchman, 1995; Johnston, 1988). Research has shown visitors that have the opportunity to see handler and animal interactions or have the opportunity to touch a wild animal are more likely to recall conservation messages compared to visitors that watch animals in exhibits (Kreger & Mench, 1995).

The most popular reasons teachers bring their classes to the zoo are the close proximity to the animals, as well as the ability to touch some of the animals (Tunnicliffe, 1994). Zoos attempt to capture the excitement of these school trips and turn them into educational experiences as well. For example, studies have shown that exposing children to slide shows or live snakes did not change their attitudes regarding fear of snakes, but having the opportunity to touch a live snake decreased their fear of snakes (White & Marcellini, 1986; Morgan & Gramann, 1989). A similar study demonstrated that negative attitudes about horseshoe crabs and sea stars were changed after students were able to handle the live animals (Sherwood & Stone, 1989).

A growing body of evidence exists suggesting that live animal demonstrations, where visitors can have close contact with wild animals, is a valuable approach to educating visitors and students. Yet accommodating all the visitors with live animal demonstrations is time consuming and can be a drain on already stretched staff time. But zoos determined not to let the opportunity of touching visitors with live animal demonstrations are turning to volunteers to help support the mission.

Volunteers at Zoos

Nearly all zoos have volunteer positions that assist the zoo in some capacity.

Billions of dollars in unspent wages are saved each year in the United States because of

volunteer labor (Hodgkinson & Weitzman, 1992). Most zoos that utilize volunteers have

more unpaid than paid staff members (Cadigan, 2003). Many zoos rely on volunteers to

provide educational components of the zoo visit via interactive activities on zoo grounds,

guided tours, as well as outreach to visitors (Heinrich & Birney, 1997). Some zoos have

included animal handling and care in their volunteer job opportunities. Training for

working with animals varies dramatically by institution, the actual job, and the type of

animal the volunteer is working with at the time. For example, some zoos ask volunteers

to assist with feeding animals, which might consist of placing a food pan in a very

inactive animal's enclosure. In this case, not much training may be needed for the

volunteer other than identifying the correct diet to be placed in the appropriate enclosure.

In Arizona, four zoos are accredited by the AZA including the Arizona-Sonora

Desert Museum, the Phoenix Zoo, the Reid Park Zoo, and the World Wildlife Zoo

(Cadigan, 2003). In addition to the Museum, both the Reid Park Zoo and the Phoenix

Zoo utilize volunteers to demonstrate live animals on grounds. Currently the Reid Park

Zoo restricts their animal demonstrations to animals that may be kept as exotic pets, like

ferrets and hedgehogs as well as insects. The Phoenix Zoo's selection of animals for

volunteer use is broader and more closely resembles that of ASDM. While each

institution has protocols for animal handling, volunteer training is always challenging.

The most common frustration based on conversations with zoo volunteer coordinators from the accredited zoos in the southwestern states (including California, New Mexico, Colorado, and Arizona) is that volunteer training consumes staff time and after all the time given, does not always prove fruitful. Volunteers may be trained and then not stay with the institution for a long period. Some volunteers are interested in progressing too quickly before their skills are adequately developed. Either the volunteer continues to move ahead of their level and can have a bad experience with the animal; or more likely the animal suffers due to unskilled handling. If the volunteer is not allowed to move ahead due to staff intervention, the difference of opinion can result in a difficult management situation for the volunteer and staff member.

These kinds of uncomfortable situations are preventable if the animal handling training is well organized and clear to all participants in the beginning. The need for a well thought out and delivered education and training program is critical. Some zoos have chosen to avoid volunteer training, management, and issues by utilizing only staff members for live animal programs. For example, Sea World in San Diego has elected to pay staff members to conduct all animal programs, even those with "non-dangerous" animals. In the 1970's Sea World did utilize volunteers to work around their birds, cleaning cages and preparing diets. However, a conscious decision was made to shift to paid staff members only for animal care and demonstration (Wolf, J., pers. com.). The San Diego Zoo does not utilize volunteers either for their animal demonstrations and enforces strict handling guidelines (Garrison, V., pers. com.). Zoo staff may believe that enforcement of handling protocols with a paid staff member is easier than with a

volunteer. The consequences of inappropriate handling can be greater for an individual

in their career rather than with a hobby. A keeper who mishandles an animal may be

reprimanded, received a poor annual review, or even be fired. Yet a volunteer with the

same circumstances may be reprimanded or relieved of volunteer duties, but there is no

salary loss. Yet volunteer coordinators at other zoos may not agree with the idea that

volunteers cannot be held to the same high standards as staff members. Whether a person

is paid a salary or in volunteer recognition, strong leadership can inspire the same level of

commitment.

Volunteer Motivation and Attitudes

Top motivating factors for volunteers giving their time to a non-profit and nature

related organization include the need to feel effective at their volunteer job. Reasons why

a volunteer might begin giving time include loss of their career or employment role,

having more free time, or desire for companionship (Nassar-McMillan & Lambert, 2003).

Older volunteers are not just motivated by the desire to help, but also by what others

close to them believe about their volunteer work (Warburton & Terry, 2000). Volunteers

may choose to work at organizations that might have been their dream profession if they

had a second career. Organizations that the volunteer feels contribute to a cause they care

deeply about or organizations that their friends and family are active in are other reasons

for signing on as volunteers. Initial reasons for joining an organization as a volunteer

might also include that the position may help advance their own skills or help with future

career plans. With the great need for volunteers, it is critical to understand how volunteer backgrounds may be related to retention (Nassar-McMillan & Lambert, 2003).

Volunteers leaving their positions often cited other competing commitments in their life as more important than their volunteer duties. College students tend to volunteer but have to schedule between classes that change from semester to semester. In terms of resume building, often students perceive one semester of volunteer work as adequate. Likewise, volunteers with children at home often can only volunteer when childcare is available. Often volunteers may be drawn to a particular type of volunteer position because they want to share experiences with families that they enjoyed as children. Some institutions capitalize on the idea of bringing in an entire family to help the organization, or offer activities for children while the parents volunteer their time and skills.

<div align="center">Volunteer Training at Zoos</div>

While the AZA has published articles on volunteers, none are specifically on training volunteers how to handle animals. A small quantity of literature specific to zoos does exist on volunteers, but it focuses on recruitment, training for positive interactions with visitors, management, and termination (Heaphy, 2001). In fact one of the more frequent topics of debate on zoo discussion lists is how to manage difficult volunteers. Unfortunately volunteer animal handling training methodology for zoos has not been published in a book or journal to date. Each institution may have guidelines about safety precautions like hand washing prior to and after animal handling. Some zoos that have

had a longer history of volunteers handling animals have written guides about individual

animals. Yet formal written plans for training volunteers and maintaining high animal

handling standards are absent in the professional literature.

Adult Learning Theory

In the 1970's scholarly researchers began formally investigating and publishing

ideas about how adults learn. Andragogy is the label used to describe the academic

discipline of the study of adult education and learning. In 1833, a German high school

teacher, Alexander Kapp, first used the term andragogy to talk about adult learning. In

his book he describes the lifelong necessity to learn both inner and outer education. By

inner education he referred to the growth of a person's subjective personality or character

and by outer education he meant the objective competencies of day-to-day life

(Reischmann, 2004). Kapp recognized that learning not only happens with teachers, but

also through self-reflection and life experience. The term andragogy was not used in

literature until the 1920's when a German social scientist introduced it again. Adult

educators in Europe began using andragogy in their writings, but American scholars did

not published with the term until 1968 (Reischmann, 2004).

Malcolm Knowles (1989) described how a colleague came to one of his

presentations about adult education and explained that Knowles was practicing

andragogy. Knowles (1990) describes andragogy as the art and science of helping adults

learn, differentiated from pedagogy that literally means the art and science of helping

children learn. Pedagogy assumes that learners only need to know what the teacher

teaches and what will be on the test, rather than how the learning experience relates to their life. Secondly, the teacher and student believe that the student is a dependent personality. Therefore a pedagogical model assumes that the role of experience of the learner is not as important as compared to the teacher's knowledge and textbook materials. Learners become ready to learn when the teacher tells them they must learn the material to pass the test. Generally the learners' concept of learning is subject-centered. Finally learners are motivated to learn by teacher, parental approval and grades (Knowles, 1990).

A contrast to the pedagogical model of learning is andragogy, which has two defining attributes. First, learners are self-directed and autonomous. Second, the teacher's role is that of a facilitator rather than all-knowing presenter of content. Knowles (1989) held the following assumptions that adult learners: are self-directed in their learning, have a wealth of experience to bring to the learning, are interested in learning to solve real-life dilemmas, want to apply what they have learned to their personal and professional lives, need to know why they are learning something before they learn it, and respond more to intrinsic motivators (increased self-esteem and quality of work-life) rather than extrinsic motivators (better wages, promotions). Knowles provided a means for adult educators to become unified and identify with a label and then a field of scholarship. He encouraged students to become scholars by studying academic research as a means to learn to theorize, doing their own research, and publishing scholarly literature (Cooper & Henschke, 2003). Table 2. presents a detailed comparison of pedagogy and andragogy.

Table 2. Andragogy and Pedagogy Characteristics (Knowles, 1990, pp 57-63).

Andragogy Characteristics	Pedagogy Characteristics
Student is self-directed	Student is teacher-directed
Student comes with vast background and life experience	Student has limited life experience
Student is focused on growth and learning	Student may be test oriented only
Learning is task-oriented	Learning is subject-oriented
Students are motivated to learn by needs	Students motivation may be grade centered
Student needs to know why they need to learn something first	Students may or may not be as centered on whys of learning

Self-directed learning means that the individual is responsible for making choices about their learning and decisions about their lives. Once adults have arrived at this self-education can cause a self-directed individual to fall back into a teacher-directed student role. The deep conflict is between the adult' intellectual need to be told what or how to learn something and their psychological need to be self-directed. Therefore adults may need to be transitioned from dependent to self-directed learners when in a traditional classroom setting (Knowles, 1990).

Adults come to the educational activity with a wealth of knowledge compared to younger students because they have more and different kinds of experiences. In addition, the differences across adult students will be dramatically than across a group of youths. Wealth of experience can make group discussions, problem-solving activities, and case methods more meaningful than when working with young people. Peer-helping activities can be more valuable with adults than with children. Adults become ready to learn things

as needed to handle real-life situations. If the individual is not ready to learn, exposure to superior models can help prompt the learner (Knowles, 1980).

Adult learners focus on information that they can utilize in their daily lives. Subject-centered orientation to learning may not be organized most efficiently for adult learners as problem or task-centered orientation. Adults are motivated to invest time into tasks that will help them handle problems in their lives therefore education must be in the context of real-life applications. Adults need to know why they are learning something and what the costs and benefits will be regarding learning the material. The first task of an adult educator is to raise the awareness of the learners about why they need to know what the educator is teaching (Knowles, 1984). While external motivators may work with adults, internal pressures are often more powerful motivators. However poor self-concept as a student can cause adults to be less motivated to learn.

These assumptions about adult learners are not always true in every case. Knowles (1990) warns that andragogy is not an ideology and in practice each learning situation is different. For example, there may be times when an adult learner is not ready to be self-directed and may need guidance from the educator. In other words pedagogy and andragogy are not isolated methods, rather students and teachers will move from one to the other occasionally even with adult learners.

Critics of Knowles version of andragogy have stated that the term andragogy exclusively means that there is a loss of including pedagogical knowledge (Reischmann, 2004). Yet in Knowles later books, he directly addresses this concern and also explains how his understandings have grown over his career. He initially had a narrow view of

how adults learned, but through the course of his career and writings, he came to believe that pedagogy and andragogy each had their place in adult learning. Other critics have claimed that self-directedness is an American approach and is not applicable in all learning environments. Again Knowles states that each environment is different and occasionally different assumptions apply.

Certain elements associated with the andragogical model have been used more widely than others. For example one element is climate setting, wherein both the physical environment and the psychological atmosphere must be conducive to learning. Of course a physical setting with the lectern in the front of the room and chairs lined in rows will discourage easy group discussion led by students. Equally important are psychological climate where students must feel safe, respected, that a spirit of collaboration exists, supported, free to express their ideas, and that they are working in a social atmosphere. Another widely used element of the andragogical model is involving students in planning future lessons. The more students are invested in the direction the learning is moving, the more likely they will be committed to the process. Encouraging students to diagnosis their own needs for learning can also be a means of keeping them engaged. Translating their needs to learning objectives, learning plans, and evaluations also keeps the student centrally involved in their learning (Knowles, 1989).

Knowles ideas form a strong foundation for a mentoring process. Mentoring can be a process-oriented relationship involving knowledge acquisition, application, and critical reflection. The relationship can be collaborative between adult learners where both or all learners share responsibility and accountability for learning. While the

facilitator may guide the mentee, both parties can be learning throughout the mentorship (Zachary, 2002). Mentorships may be an easier transition for adult learners that have been away from traditional classroom settings and are hesitant about entering into a formal learning environment.

For adult learners in the classroom, Zemke & Zemke (1984) utilize Knowles early work but specifically describe how to make the classroom appropriate for adult learners. For example, short lecture periods and many opportunities to practice material given are critically important for adult learners. Bad feelings about previous classroom experience can prevent some adults for embracing new behaviors in front of peers. Adults have expectations and it is necessary to take time to articulate the expectations for the course prior to beginning. Recognizing and soliciting experiences from the students can be an invaluable asset to the group. Finally new knowledge must be integrated with previous knowledge and requires time and practice. Many of these ideas are utilized by Knowles in his later works and seem commonplace in some classrooms.

Zemke and Zemke (1984) also focus on the emotional aspects of learning and advise that adults tend to take errors personally and are likely to allow errors to affect their self-esteem. In most cases adults are more likely to use familiar methods and ideas rather than take risks associated with new situations. In addition adults may acquire some knowledge slowly if there is little conceptual overlap with familiar ideas. The slow pace may be a source of frustration, lead to the inability to take risks and then cause the adult to shy away from learning.

The value of andragogy for adult educators lies in the understanding that adult classrooms are not as they might remember their childhood school experiences. While similarities exist between how children and adults learn, the classroom situation may best be modified for adults. Rather than an all-encompassing theory of education, adult educators should look to andragogy as the beginning foundation for setting up an adult classroom. Recognizing adult life experiences, the deep motivation that comes with a need to learn, encouraging the "why" questions, and finally creating an atmosphere where self-direction and task-oriented learning are primary could create a comfortable and productive atmosphere for adult learners.

Experiential Learning Theory

Kolb's (1984) Experiential Learning Theory states that people learn in a two-step process: learners input information and then process information. Inputting information happens in one of two ways: with concrete examples or abstract concepts. Learners then process information in two different ways: active experimentation or with reflective observation. He recognized a sliding scale in that not all learners input information in one way all the time rather inputting and processing occur on a continuum.

Kolb (1984) described four learning style combinations based (see Table 3) on how students input and process information. Students who combine active experimentation and concrete experience are labeled accommodators. These students tend to be people-oriented and learn through a trial and error system. The second category of students is called divergers who combine concrete experience with reflective

observation. Divergers generally use information from their senses. Assimilators combine reflective observation and abstract conceptualization. These students are abstract thinkers and have a theoretical orientation. Finally, convergers combine abstract conceptualization and active experimentation. They have a good understanding of practical ideas and their application.

Table 3. Kolb's Experiential Learning Theory (Kolb, 1984).

PROCESS INFORMATION	INPUT INFORMATION	
	Concrete Examples	*Abstract Concepts*
Active Experimentation	Accommodator	Converger
Reflective Observation	Diverger	Assimilator

Most researchers have applied learning style theories to children or young adults. However, Truluck and Coutenay (1999) investigated learning styles preferences among older adults and found some trends. In general, the accommodator learning style dominated the 55 to 65 age group. In the 66 to 74 age group, the diverger learning style was most common. Finally the assimilator style was most prevalent in those individuals over 75 years old. Not all older learners are active, hands-on learners as adult education literature suggests, rather with advanced age there is a tendency to become more reflective and observational (Truluck & Courtenay, 1999). So while adult learning may be task-oriented, it does not have to be hands-on, but can be reflective.

Regardless of learning style preferences, researchers recommend utilizing multiple techniques or learning methods rather than purely linking learning styles to learning methods (Reynolds, 1997; Loo, 2004). Learners may progress through different

learning styles as their experience broadens. Kolb (1984) suggested that learners are on a continuum and they will move through different learning styles. Therefore it is in the best interest of the learners for educators to utilize a variety of learning methods. Also with any group of students there are trends or tendencies, however not all students follow the trend and educators are responsible for the class of individuals.

Kolb's (1984) Experiential Learning Theory is useful for adult educators because it suggests that educators need to be aware that learners have different means of inputting and processing information. In a classroom or group setting, an educator must be responsible for accommodating all students. Recognizing the trends for how older adults input and process information can be useful prior to planning training or classroom sessions for adult volunteers. In some cases an educator might choose to focus the classes on the dominant learning styles and then try to supplement main class work with other activities to reach students who do not typically learn in the dominant method.

Summary

Many of the problems at the ASDM have been shared with the researcher regarding volunteer training can be generalized to difficulties working with adult students. For example, zoo staff in charge of preparing volunteers may or may not have had exposure to teaching techniques and strategies that classroom teachers are taught and then utilize on a daily basis. Many zoo professionals have teaching exposure through an apprenticeship of observation. They have been students, have watched their teachers and therefore have had that limited preparation for teaching others (Lortie, 1975). In many

cases volunteers may have been teachers or have had teaching experience in their careers. The volunteers' experiences in combination with zoo staff, not trained as educators, can create a challenging preparation period for training animal handling skills. The approach when working with adult students is unlike experiences zoo staff may have encountered when working with visitors in an informal setting or children in a classroom.

Compound the challenges of teaching adults with another issue: working with live wild animals leaves little room for errors. While the animals are conditioned to handling sessions for the visitors, they can become easily distressed if poor handling techniques are utilized. Docents, visitors, and the animals can be jeopardized without careful handling and the ability to recognize animals stress signs. An ideal means to attract visitor attention and create enthusiasm about wild animals is the use of program or demonstration animals. However, a mishandled or stressed animal can harm the visitor or leave them with the wrong impression and a negative message. Animal handling training for volunteers is a large undertaking for any zoo and requires dedicated staff members and volunteers. Unfortunately formal published literature about the topic of live animal handling training for volunteers is absent. Experiential Learning Theory (Kolb, 1984) can offer zoo educators a means to design training and preparation activities to best fit the needs of older adult learners.

CHAPTER 3

METHODOLOGY

The purpose of this study was to explore an animal handling training program at the Arizona-Sonora Desert Museum and describe the barriers encountered by staff members and volunteers. Specifically, docents, or volunteers, who educate and work with visitors on Museum grounds were the focus of the study. The research utilized qualitative methods with a naturalistic inquiry paradigm. Data sources included docent surveys, docent interviews, docent focus group discussions, and staff interviews. Participant selection as well as the setting is described below. Finally, data collection and analysis are detailed in this chapter.

Qualitative Methods

Qualitative research draws from a variety of methodologies, and involves an interpretive and naturalistic approach (Denzin & Lincoln, 1998, p.3). Generally qualitative research does not rely on statistical data but rather studies focus on natural settings and attempt to make sense of or interpret phenomenon. Advantages of qualitative research include a rich data set and the option for the researcher to maintain a constant comparative analysis and modify methods during the study if necessary. While statistical analyses are not usually performed on qualitative data, some researchers structure studies such that the qualitative data can also provide basic statistical comparisons (Strauss & Corbin, 1998, p. 11). Qualitative research does not try to test a hypothesis; rather it proposes theories about the group being studied. Different types of

qualitative research include ethnography, phenomenology, critical theory, feminism, and grounded theory (Denzin & Lincoln, 1998, p.27). Grounded theory and naturalistic inquiry are also qualitative methods of research, with naturalistic inquiry rising from a grounded theory approach. This study will use a naturalistic inquiry approach.

Grounded theory begins with a researcher becoming familiar with a particular topic, gathering data and then through data analysis theory emerges. Researchers do not begin with a theory in place, unless they are intending on expanding upon an existing theory (Strauss & Corbin, 1998). Grounded theory, developed by Glaser and Strauss (1967), allows researchers to formalize theory development from data. In grounded theory, data is analyzed by moving from the specific to the general, with individual concepts creating categories. Systematic coding of the data leads to the development of these categories that are then drawn into themes that can be classified in a more general meaning. Theory development is the creation of a system or means to explain the focus of the study (Strauss & Corbin, 1998). Ultimately the theory is derived from document analysis and coding because all data collected are in written format or transcribed into documents. Testing for rigor includes reviewing the theory with how well it matches the system or what is actually happening.

Actual coding for grounded theory approach can be done in a variety of ways. Glaser (1978) uses open coding only, where properties can be identified and illuminated. Open coding generates emergent categories from text on a sentence, paragraph, or document basis. After categories are derived, properties or characteristics about the groups of categories emerge. From the properties, theories are constructed or the

researcher can go back to the data to review the categories again. Dimensions of the properties refer to how the properties link together in a continuum (Strauss & Corbin, 1998).

Strauss and Corbin (1998) utilize axial coding that begins with open coding but is a circular process. Open coding occurs where the data is broken into categories that are then linked by their properties. However, axial coding reconnects data at the level of dimensions through the various categories (Strauss & Corbin, 1998). In other words, the categories are linked with subcategories and reconnected in ways not possible with open coding only. Axial coding involves several steps, including reviewing the properties or a category and their dimensions, identifying actions and interactions associated with the phenomenon studied, relating a category to its subcategories through statements about how they relate to one another, and finally looking for clues about how categories might relate to one another (Strauss & Corbin, 1998, p. 126).

Categories become central based on the frequency within the data set. Validation of the categories and theories are based on the ability to match what is happening with the data. Theory that emerges should explain most of the cases or examples in the data. A diverse data set, in terms of multiple types of documents or combination of documents and interviews, the higher the validity of the theory.

While grounded theory aims to generate theory, naturalistic inquiry is a way to process data. A naturalistic study is nearly impossible to design in a definitive way before the study is undertaken (Lincoln & Guba, 1985). Collection of data is similar between naturalistic inquiry and grounded theory, but the ultimate product may be a rich

description rather than theory. Naturalistic inquiry begins with a focus problem or question, recognizing that as the study unfolds, the focus may shift. Lincoln and Guba (1985) recognize the naturalistic inquiry process in three phases including orientation and overview, focused exploration, and member check.

<center>Participants</center>

Docents who Handle Live Animals for Demonstrations

All participants are animal handling volunteers who work at the Museum. The docents, volunteers who act as educators on Museum grounds working directly with visitors, were the focus of the study. A second volunteer group, those who handle animals behind-the-scenes for animal demonstrations conducted by staff (free flight bird of prey demonstration), acted as a pilot group to test surveys prior to data collection with the docents. The description herein is of docents at the Museum rather than docent groups at all zoos or museums.

Docents dedicate at least one year of volunteer time as non-animal handling docents before they are invited to learn to handle animals in the Museum's Interpretive Animal Collection. Initially they are invited to handle only invertebrates, amphibians, and reptiles. After one year of animal handling experience, docents are invited to learn to handle small raptors or birds of prey, and after mastering those handling skills, they have the option to work with larger hawks and owls. Each docent gives a minimum of one hundred forty-four docent hours annually with approximately one to three hours of animal handling per week. Some docents have been handling animals for nearly 25 years at the Museum, while others only have one year of experience.

Currently, 142 docents of 170 docents are certified to handle animals. Of the 142 handlers, nine handle only one or two animals, while the other 133 handle three different kinds of animals. Each of these docents checks out one or more animals for on-grounds demonstrations with visitors. A handful of docents, only four, trained to handle animals but were unable to certify on animals in 2004 due to their own health or scheduling concerns. These four are not part of the 142 certified docents. Finally, three docents signed up for training and then refused to attend all training sessions and dropped out of animal handling in a protest against the training/certification system. Again, these three are not part of the 142 successful animal handling group.

Each animal group has a different number of docents working with it. In some cases the difference in numbers of handlers has to do with the number of animals available to work with and in other cases it is due to handlers' abilities. The numbers of handlers for each animal group for September 2004 through August 2005 are the following: 70 arthropod, 43 snake, 10 boa, 22 tortoise, 15 salamander, 16 kangaroo-rat, 20 parrot, 62 falcon, 20 small owl, 30 large owl, and 27 hawk. Some docents choose to handle only one animal rather than the upper limit of three animals.

Docents range in age from forties to early seventies. A large portion of the docents are retired or not employed by choice, with less than 10% of docents employed fulltime. Docents are primarily Anglo though there are a few Hispanic docents. Finally, about half of the docents have completed college degrees, with over 60 individuals (33%) holding advanced degrees (ASDM Docent Life Skill Survey, 2003). Each docent handling live animals for visitor demonstration has completed a semester long natural

history class on the Sonoran Desert provided by Museum staff and experts in the field, and has learned content about the animals they are interpreting.

Docents interpret live animals at specific sites on Museum grounds for approximately a 45-minutes session. Visitor groups listening to a docent interpretation vary from one to 15 visitors at any given time depending on the day of the week, time of day and season. Docents offer natural history, conservation updates, or identify behaviors the animal exhibits during the interpretation. Docents often use questioning techniques or surprising or little known facts to engage visitors. Docents also respond to questions from visitors. Each of these techniques was briefly covered in the general docent class.

During live animal interpretations, animals in use may be inactive and quiet. In these instances, quiet animal behavior can allow the docent to focus on what they are sharing with the visitors. However in other cases, animals may be less appealing to present or demonstrate if little natural behavior is offered. Most docents are excited to work with animals that are active during interpretation. Protocols are established regarding visitors touching animals; some animals may be touched if the docent instructs the visitor about delicately touching the animal with appropriate technique. Other animals cannot be touched or handled by visitors due to human safety and/or animal welfare concerns. Several of the animals have companion artifacts, and visitors can touch the artifact (e.g., empty tortoise shell rather than touching the live animal; lone barn owl feather instead of touching the live animal's wing).

Staff Preparing Docents to Handle Animals

Training staff members who prepared docent animal handlers were also included in this study. These staff members have been working with docents anywhere between eight months to four years, depending on their length of employment. Their preparation to become trainers of docents varies from having teaching experience in previous jobs or at a minimum having mentoring experience as docents or in previous paid positions. Staff members' ages ranged from mid-twenties to mid-fifties. Two of the four staff members were former docent animal handlers. All staff members are women. Specific details about their experiences and backgrounds will be included with their interview data.

Researcher's Role

The researcher has worked with the docents on animal handling training for four years. This past season, the same in which the data was collected, was the first year the researcher was not doing one-on-one training with the docents. However the researcher did review animal handling protocol documents, class lessons, and certification forms. The researcher taught several of the initial large group classes and interacted with docents as questions arose. The researcher also helped her staff assign animal groups to individual docents. While the researcher collected data for this study, she continued her work at the Museum.

The researcher has known some individual docents over seven years because of their work on another Museum program that the researcher oversees. Therefore the researcher has been involved with many docents for years. To ensure data was not

colored by these relationships, the researcher kept a journal while collecting and analyzing data. The journal helped record what the researcher was thinking and feeling as she read and interpreted data. Having the ability to review the data and the journal at later dates gave the researcher an opportunity to see when interpretations were based on impressions of what the docent may have meant from past conversations verses the data itself. The role of the researcher in the docents' work at the Museum was the most difficult part to disentangle from the data.

Setting

Docent animal handlers at the Museum have their natural history and interpretive preparation classes when they first sign on with the Museum. Their natural history and interpretation course meets twice weekly for sixteen weeks with two written exams. After that course, docents attend one three-hour class each month to keep current with new information. Animal-handling training occurs on an annual basis and is more interactive compared to docent natural history preparation. At the monthly class, animal handling training schedules and changes are announced.

Docents receive a packet of information created by the Animal Behaviorist and her staff members on animal handling training requirements, protocols, and schedules (see Appendix B). Each docent can select from the 11 animal types and sign up to train on three animals. The rationale for docents working with only three different animal groups is that they have the opportunity to work with each animal at least every other docent day at the Museum (every other week). The more animals a docent is trained on,

the less frequently they will be able to handle each one as they usually come to the

Museum once a week and only have time for two animals a day.

Docents must progress through a series of learning activities to become certified

on animal handling. Once assigned to an animal group, the docent must attend the

necessary large group classes, and one-on-one training sessions. The one-on-one session

is where the docent actually works with the animal. A summary of the progressions is

listed in Table 4 below.

Table 4. Docent Raptor Handling Training Description.

Participants	Lesson	Instruction Type/Time
All docents & trainers	Animal Handling 101	Lecture, hands-on activities (1 hour)
Raptor handing docents & trainers	General Raptor Handling	Lecture, demonstration, hands-on activities, games (2 hours)
Raptor handling docents and one trainer	Specific Raptor Handling One	Demonstration and docent practice (30 min)
Raptor handling docents and one trainer	Specific Raptor Handling Two – Six	Docent practice with trainer (30 min)
Raptor handling docent	Specific Raptor Handling	Docent self practice (varies)
Raptor handling docent & one trainer	Raptor Certification	Docent demonstration (20 min)

After each docent chooses their animals, he or she is required to attend the classes

to learn how to handle the animal. Classes take place at the Museum in a classroom away

from the animal building and therefore a bit out of context in terms of packaging the

animal for transport, etc. The reason classes are not held in the animal building is the

limited space; only several docents could be in each room at a time. Classes tend to be

designed to work with groups of six to 20 docents. Typically other training for docents is

held one, two-hour class each day of the week. In other words, the same training is

offered on Sunday, then Monday, and so on throughout the week. Therefore docents do

not have to travel out to the Museum on an extra day other than their docent day to attend

trainings. Also, docents are in work groups with their peers from their docent day.

Animal classes, however, are different in that the docents are mixed together from all

docent days. Some of the classes are lecture style while others incorporate many hands

on activities. Animal handling classes are the only times when docents have to work

together with docents from other days, creating a different dynamic in the classroom

setting.

Training sessions occur in the animal building and are small group or one-on-one

sessions with one or two docent and a trainer. These sessions tend to have docents from

the same workday training together. Docents sometimes have the option of signing up

with a specific trainer or staff person, but sometimes only one staff member is available

and there is no choice. Training sessions are small group demonstrations of how to work

with the animal. The first time these sessions are trainer led; in other words, the trainer

demonstrates for the docent how to handle the animal, and the docent can interrupt with

questions or comments. After the first session, the docent has the option of requesting

more demonstration sessions from the trainer, or the docent can try to work with the

animal directly. Docents always have the option of making an appointment with the trainers either as a group or individually to review questions. Email has also become another means of answering questions for the docents.

Data Collection

Data was collected from several different sources from the Museum. All written documentation regarding docent animal handling training and protocols were collected. Documents include protocols or guidelines for animal handling, certification forms or checklists, and any other notices regarding animal handling that docents receive from staff members.

Docents who have participated in live animal handling training courses in the last year at the Museum were asked to complete a written survey. The survey was used both as a screening tool to assist with interview candidate selection and a means to gather a broad perspective about the docents' perceptions of barriers in regards to animal handling training.

The researcher informed all docents about the survey in a mass email to the group, the email was posted in the docent lunchroom (common practice for communication with the group) and an announcement was made at lunchtime about the surveys by the researcher the week of distribution. The announcement requested help from all docents who received any amount of animal handling training in the summer of 2004 and/or 2005. From 2001 until the present, docent animal handling preparation has changed dramatically, therefore selecting the most recent period allowed the researcher to

investigate with greater depth rather than a broad perspective. If docents were not at the Museum the week of the survey, they had the opportunity to complete the survey via email during that same time period. The researcher distributed surveys at the beginning of lunchtime in the docents lounge. After lunch, the researcher collected the surveys as docents finished them. If docents needed to complete the survey later that afternoon, the researcher was available in her office to distribute and collect the survey. Once collected, the name on the survey was inked out and a number was assigned to the survey to protect confidentiality.

Before being used with the docents, the surveys were tested for readability with volunteers who handle animals in other programs at the Museum. These other volunteers have slightly different training protocols, however their completed surveys allowed the researcher to assess whether the questions were understandable and gave useful data. Modifications were made as needed on surveys.

Surveys were designed for completion in under a half hour, if possible, to increase number of completed surveys. While docents were willing to help, the shorter survey was easiest to complete. On the top of the survey form, a subject disclaimer was used to explain that by completing the form, the docent gave consent to utilize the data. Surveys were collected immediately after completion. Docents completed surveys during their docent day and not at home to increase number of surveys returned as well as discourage docent discussion prior to completing the survey. Docents were asked to participate in the study a week before the surveys were available so they have time to think about their animal handling experiences and whether they wanted to participate or not.

Ninety-three docents completed surveys, several of these via email. The collection period was during the summer when many docents are away from the Museum on vacation. Those vacationing docents with email were able to participate. Forty-nine docents did not participate in the survey, as they were not at the Museum during the survey period. Every docent asked in person did complete

Open-ended survey questions addressed whether docents believe that live animal handling instruction is adequate and that docents are given enough support to accomplish their tasks. Survey question development was based on gathering as much information from individual docents rather than their ideas about the entire groups' perspective. Docents at this institution have often tried to use a group approach for suggesting change when in reality only a few docents have voiced concerns about changes. Therefore, it was necessary to emphasize that the survey should be a reflection of individual thoughts and beliefs rather than an interpretation of the groups' perspective. Further, the survey items were designed to include a range of information about individual components of docent animal handling training. Docents were told both verbally and in a written introduction to the survey that their responses would not negatively impact their individual training or animal assignments.

Survey questions are listed below:

(1) Why did you select the animals that you currently handle?

(2) Describe what portion of animal handling training has been most helpful and why (SHP documents, classes, one-on-one training sessions, or practice on your own)?

(3) Do the trainers help you learn to effectively handle live animals? If yes, how? And if no, how could they help you?

(4) Describe a specific example when an animal was not well behaved for you and what you did in response to the animal.

(5) Describe what you would change about animal handling training?

(6) How do you learn best (lecture, reading materials, hands-on practice with a partner, hands-on work alone, other)?

From docent surveys, ten of the docents were selected to participate in the interview portion of the study. These docents were selected based on how much information they shared on the survey. For example, they gave complete answers to questions with examples in detail. Each of these docents had commented on ways to change the animal training process or gave specific examples of portions of training that worked well for them. These docents were good interview candidates because they were honest in critiquing the animal handling training program and many had criticisms of the program. An additional nine docents were selected to participate in focus groups about barriers to animal handling training. Focus group docents were selected the same way as interview participants, but also the researcher consciously selected docents that have not appeared shy in groups. All focus group participants were docents who have been comfortable speaking out in a group in other classes where the researcher was present. Each of the two focus groups was limited to four or five participants to investigate similar questions as the interview. However, focus groups encouraged docents to help each other

recall events and then provide a more complete story. The selection of docents was designed to maximize the scope and range of the study (Lincoln & Guba, 1985). From the completed surveys many different viewpoints emerged. These varied viewpoints as well as thorough responses helped identify docents for interviews. A broad selection of docent interviews provided a rich data set. Both the diversity of themes was captured but also weighted by the frequency of themes. Each unique theme was captured, but the researcher also documented the frequency of the themes such that the most abundant were most developed in the analysis. Ten docent interviews were sufficient to gather a broad perspective. If new ideas were still presented in the later interviews, then more docents would have been interviewed. While themes were saturated after just eight interviews, the researcher still interviewed ten.

The researcher interviewed docents individually at the Museum in a quiet office. Interviews were audio recorded and later transcribed. Interviews were semi-structured in that the researcher used a base list of questions (see Appendix C) but the researcher deviated from the questions when valuable data emerged in a different direction. Questions encouraged individuals to discuss in detail their ideas about animal handling training methods as well as specifically what is effective in the training and what is not. Questions encouraged participants to talk about the barriers to animal handling training with specific examples when possible. Suggestions for modifications of the training program were sought. For interviews, boundaries were established such that the participant provided answers that were useful for the study (Kahn, 1999). The interviews remained focused on this one area of docent life and did not stray often into other

committees or docent activities. For example, in everyday conversations docents often want to express concerns about zoo issues. Docents ask and engage in conversations about budgets, wildlife conservation, politics at the Museum, etc. The researcher redirected the interview when docents began commenting on exhibit animals, museum politics not related to animal handling training, or other topics not pertinent to the study. Before any docents were interviewed, interview questions were tested with volunteers who handle animals in other programs (not for demonstration with visitors) at the Museum.

Docents were observed with their live animals throughout the summer of 2005 as part of the researcher's job. While all docents were observed, the researcher took the opportunity to record data on those docents that were interviewed. Observations were conducted by the researcher and were part of their normal docent day, and each individual was observed three times for five-minute blocks. Each docent was observed with any one of their three animals. Field notes were taken of both the docent and the animal. Data form used for collection is found in Appendix D. Records indicated the animal's behavior and the researcher recorded the corresponding docent behavior.

Finally the trainers or staff members responsible for preparing docents were interviewed. All four staff members were interviewed generally about the animal handling training and issues that concern them. A list of interview questions are found in Appendix E, but the list varied based on what was discovered during interview session. These interviews were audio recorded for later transcription. Again interviews occur at the Museum in a quiet office.

Data Analysis

Research Question: What are the barriers to preparing and educating Museum volunteers (docents) to effectively handle captive wild animals for visitor demonstrations?

Each docent who completed the open-ended survey provided information about his/her experiences with animal handling training, and the barriers in animal handling training. From these surveys, docents were purposively selected and interviewed. Interviews explored the depth of the barriers and the how and why of the barriers. For example, docents were asked to provide specific examples and then explained how their example demonstrated the barrier described. When possible, multiple examples were included to provide a more complete picture. From these examples, themes or patterns were identified and coded and described.

In addition to the docent interviews, staff interviews included their perceptions of barriers for the docents as well as the staff members' perception of docent understandings of the barriers. Specific examples were described when possible with more than one docent case. From each example, themes and patterns were identified and compared to docent interviews.

Docents who were interviewed were observed handling their animals. These observations served to identify strong handlers and those who had more difficulty. The researcher, an expert in the field of animal behavior, recorded docent and animal behavior throughout the observation. After three observations, the researcher utilized the data to make a judgment about the docent's ability to handle the given animal. This

information was collected to help determine how well the docent applied the knowledge he/she gained from animal handling training.

Data was analyzed searching for themes. The early data collection from surveys and document analysis guided the interviews in order to best facilitate the unfolding inquiry (Lincoln & Guba, 1985). Therefore, firm interview questions were not finalized prior to survey completion.

Lincoln and Guba (1985, p. 290) suggest that researchers pose four questions to themselves to ensure trustworthiness or validity. First, the research should pose the question how can one establish confidence in the "truth" of the findings with respect to the subjects? In a conventional or quantitative study credibility would be termed internal validity. For this study, the question becomes: are the subjects' or docents' responses credible? Means to increase credibility include a prolonged engagement or sufficient time with the subjects and culture. In this study the researcher works in the community with the subjects or docents and therefore was aware of inconsistencies. However, the study has to grapple with situated motives like wanting to please the researcher. Surveys were passed out and overseen by the researcher. The docents were told that the information is important to the researcher, the animal training staff, and the Education Department. After interviews were transcribed and initial coding begun, the researcher conducted a member check by checking with subjects to be certain that they believed the data agreed with what they believe. In this way the docents had an opportunity to correct

errors and challenge interpretations of their interviews. Each docent had time to review the written transcripts as well as time to make comments on areas that are unclear to the researcher.

Second, the researcher asked if the findings of the inquiry are applicable and transferable to other contexts or with other subjects (Lincoln & Guba, 1985, p. 290). This study was the first of its kind, and few institutions have such a developed volunteer animal handling training program. Some of the data is broad and trends from one institution often mimic another. As data was analyzed, the researcher referred to conversations with staff members from other institutions to check for common themes. Each year the researcher has been in contact with other institutions about their volunteer training programs as a matter of course. Information gathered previously has common themes with current data collection. However, new themes and ideas emerged in this data set and not in other institutions. These themes may be because this museum enjoys status as a leader in innovative training as well as the depth of the investigation. Indeed, the point of conducting a naturalistic inquiry is to reveal information that is currently unknown and therefore may be unique to this setting. Using this method requires that the researcher must responsible to describe the context and subjects so clearly that any further research will be able to use the deep description as the starting point for comparisons or transference between this data set and another. The current animal handling training program is unique to the Desert Museum at this point in time and therefore generalizing this information is not a concern methodologically.

Third, Lincoln and Guba (1985, P. 290) ask how the researcher would ensure that the findings would be repeatable or dependable if surveys were at the same institution with the same respondents? The survey and interview questions were tested on a non-docent volunteer group at least twice. These pilots provided confidence that the questions were clear and if subjects answer honestly, similar themes would emerge. However, like organisms, the training program evolves each season. If the survey were repeated over a year later, the researcher would hope to find subtle changes in responses as the program changes to better meet docent needs. Another step taken to ensure dependability is to have another researcher review the methodology and data as it is collected. The function of the second researcher is to examine the data and determine whether the data supports the interpretations. For this study, the researcher worked alone due to constraints at the institution.

Finally, the fourth question is how can the researcher be certain that the findings are based on the subjects' responses and not the researchers' perspective (Lincoln & Guba, 1985, p. 290)? In other words, are the interpretations objective or confirmable by the data? Again a second researcher familiar with coding could review the data and code portions with the coding manual to determine if common themes arise. However, for this study the researcher worked alone and used a reflexive journal to review thoughts while analyzing data. A reflexive journal can establish credibility, transferability, dependability, and confirmability (Guba, 1981). Records were made about why decisions about interview questions were made and why certain themes were focused on in the

data. Review of the journal allowed the researcher to determine that the data guided the inquiry that the researcher's belief system and opinions did not stray into the research results.

<div align="center">Assumptions and Limitations</div>

The study assumed that volunteer responses were honest. Volunteer openness was also an assumption. Even if the volunteers were embarrassed about their experiences, it is assumed that they still shared them. The richness of the data depended on how well the researcher draws out information or data from the subjects. The limitations of the study include that the transferability or generalizability may only extend to institutions that have similar histories, docent populations, and also training programs. Therefore the deep description in this study may allow others to transfer some results to their institution, but it is unlikely that any other institution has such a long history as this site.

CHAPTER 4

RESULTS

Data collected for this study included 93 surveys collected from docent participants, two docent focus group interviews, ten individual docent interviews, ten docent-animal observations, 19 packets of docent training and certification forms (for docents who participated in interviews), and four staff member interviews. As the data was gathered the researcher made journal records about the data collection process.

Docent Written Surveys

Every eligible docent at the Museum during the survey data collection week was asked and agreed to participate in the survey. The survey can be found in Appendix F and was given to docents on a single sheet of paper, one-sided. Data is summarized in Appendix G. Docents described why they selected the animals they handle. Responses included: learning more about the natural history of the animal, learning new animal handling skills, overcoming a fear of the animal, sharing charismatic animals with the visitors, selecting an animal that other docents did not prefer to handle to make scheduling for docent captains easier, and also some docents were only eligible for the beginning tier of animals. Docents listed a variety of reasons why they chose their animal and individual docents had several reasons.

When asked specifically about which portions of the animals handling training was most helpful, 58% of those surveyed believed that one-on-one training sessions with

docents and trainers were most effective. Twenty-two percent of docents believed that the animal handling protocols were most helpful while thirteen percent said that the classes were best. The last seven percent of docents stated that self-practice or working with other docents was the portion of training that helped them most.

The responses from docents on how trainers helped docents learn to effectively handle animals were useful in determining those docents that might be good interview candidates. One docent thought the trainers did not help her learn to handle the animals but rather caused her stress and frustration. Eighty-four (90%) docents stated that the trainers were helpful. One half of that group did not explain how the trainers helped them. The other half of the docents said that trainers were helpful and gave examples of interactions they had with trainers. This question provided details about whether the docent was willing to consider the topic of animal handling training and share their ideas. Those docents who gave examples were potential interview candidates.

In response to the question about whether animals had ever misbehaved while the docent worked with them, the answers were in two categories. Only 20% of docents believed that they had never had an animal misbehave while they were handling it. The others listed examples and what they did. These examples provided limited information on how closely they monitor the animal while it is on-grounds with them. Many of the examples of misbehavior were minor with appropriate action response given.

The last two questions were geared to gain suggestions from docents on how they would change the animal handling training. Thirty docents wrote that they would not change anything. Yet a good portion, 67%, gave broad suggestions, like provide training

during the fall rather than summer so all docents are in town to take training. Specific

suggestions were also made about incorporating video or CDs that docents could use to

watch the trainer demonstration several times without using lots of staff member's time.

Those docents who gave examples, whether detailed or brief, on the survey questions

were considered potential candidates for interviews.

<div align="center">Docent-Animal Observations</div>

Docents who participated in the interviews were observed with their animals

during a typical live animal demonstration on grounds to access their skill level of animal

handling. The skill level of all interviewees met the standard. Several individuals

struggled to maintain the standard throughout the observation period, yet others clearly

exceeded it. These observations are critical when factoring what the docents have shared

about the effectiveness of training and what the barriers are.

The docents were each observed three times for five-minute periods with the

researcher recording the animal's behavior and the docent response every 15 seconds.

Table 5 provides a summary of docent responses to the animals in terms of appropriate or

not appropriate action. For example, if an owl spread its wings and jumped off of the

handler's glove, the appropriate response is to hold the glove steady so the bird may

regain it. Inappropriate responses might include swinging arm to help bird back onto

glove or moving glove close to handler's body where bird might contact handler.

Table 5. Docent Responses to Animal Activity

Docent	Session Number	Appropriate Responses	Inappropriate Responses	Total
A	1	20	0	20
	2	20	0	20
	3	18	0	18
B	1	19	1	20
	2	17	2	19
	3	20	0	20
C	1	19	1	20
	2	20	0	20
	3	19	1	20
D	1	18	1	19
	2	20	0	20
	3	20	0	20
E	1	20	0	20
	2	20	0	20
	3	20	0	20
F	1	19	1	20
	2	20	0	20
	3	20	0	20
G	1	18	2	20
	2	17	3	20
	3	17	3	20
H	1	16	4	20
	2	17	2	19
	3	17	3	20
I	1	19	1	20
	2	20	0	20
	3	20	0	20
J	1	19	1	20
	2	16	0	16
	3	20	0	20

Another example is that of a snake moving along the handler's arm toward his or her

body. The appropriate action is to grasp the snake and gently guide it away from the

handler so it does not become entangled in belt loops or clothing. An inappropriate response is to allow the snake to move around handler's hips, supported by clothing.

Some docents had fewer numbers of responses because their session ended early if the next docent was ready to relieve them at the location. Several docents had slightly higher numbers of inappropriate behaviors, but all were minor in terms of animal handling skills. The most frequently observed inappropriate activity was rotation or tipping of the glove while holding a bird of prey. Ultimately if the glove is not level, the bird can begin moving often on the glove or pulling out more of its leash. If the bird jumps off the glove with lots of slack in the leash it can land on the handler's arm in extreme cases. The only other handling error was briefly not controlling the head of the snake while interpreting for visitors. Controlling the head portion of the snake prevents the snake from biting the handler on the body or a visitor. Those interviewed have different animal handling skill levels. Each of these docents was certified on all animals they attempted to learn to handle. Focus group participants were not observed.

<center>Docent Focus Groups</center>

The first focus group was made up of docents who are all thought of by staff members as out-going and willing to talk about docent topics. These docents were selected for the first group to help the researcher begin the discussion about barriers to preparing docents for animal handling. The focus group lasted nearly an hour and was made up of two men and three women, for a total of five participants. One of the docents was a relatively new docent (graduated in the most recent class 2001). The others have

been docents from five to more than 20 years. The focus group session was a discussion where participants both agreed with one another and continued to provide examples for each other; and disagreed and defended their positions against others in the group. This group provided the researcher with a solid base from which to begin interviewing individual docents.

The second focus group was comprised of four docents, two men and two women. Again the focus group was a mixture of relatively newer docents (graduated in 1998) and others who had been volunteering at the Museum for 12 years. This group echoed so closely the interviews that it validated the information provided in the first focus group. Docents in this group were also willing to talk about their ideas though they may have differed from others in the group. The momentum of the discussion with this group was slightly stilted compared to the first group. Several individuals in the group have had disagreed strongly and publicly with the Animal Behaviorist/researcher. The focus group data was included with the interview data for analysis. Focus group data was analyzed with the same methods as the interviews, described below.

Docent Interviews

The docent interviews lasted from 35 to 45 minutes depending on the amount of information shared as well as the style of participants. Those who provided examples for each statement tended to have longer lasting interviews. The ten docents interviewed were primarily female, with two men and eight women. The range of experience as a

docent varied with some from the most recent class (2001) to others that have been
docents for nearly 30 years.

After transcription, the interviews were read and themes were identified. Notes
were made on interviews about how docent comments could be identified as barriers.
Using the constant comparison method (Strauss & Corbin, 1998) of each interview
transcription, the themes became apparent. The themes identified are discussed in the
next sections.

Animal Welfare Concerns

One common theme from the docents was the role or place of the trained animals
and their welfare. Zoos across the country have recently placed program animal welfare
as the leading topic for education programs. The Annual American Zoological and
Aquarium Conference (September 13-18, 2005) in Chicago focused on how to best use
and care for animals in school and educational programs. The Raptor Research
Foundation Annual Conference, in Green Bay, Wisconsin (October 14, 2005) focused on
raptor care for program animals in the Education Section of their meeting. The emphasis
to maintain program animals in a healthy environment has become a focus at the Museum
several years ago and is a national trend. The docents have recognized animal welfare as
a critical aspect of the program animal collection.

Docents expressed concerns about safety when working with the animals as they
might be potentially threatening to the docent, either during training or even throughout
weekly handling. For example, one docent said, "When I first started handling a snake, I

was terrified and I never considered handling a snake…I think safety is an important issue. All animals can bite." Several of the docents perceived that the animals could bite or scratch them, but did understand that any injury would be minor yet frightening to the docent. In one case, a docent shared that she would not have elected to handle the tarantula if she had not learned about the animal's natural history first. As she gained knowledge about how the animal made its living in the wild, she became "electrified" about tarantulas and wanted to share the information with visitors.

To contrast that one docent said, "If a person is having a hard time with a snake, if they are afraid of the snake, then they shouldn't be handling snakes. It's obvious." For docents that have fears of certain animals, there are alternate animal options. Usually there are dozens of educational materials and other docent activities to share with visitors on grounds. It is not mandatory that docents work with live animals. If a docent has agitated the animal, it was suggested by docents from the first focus group that it is the duty of the staff member to remove the docent from handling that kind of animal. Docents have expressed that the lead staff trainer has to have a "little bit of toughness" when it comes to animal welfare and docent feelings. While hurting feelings should be avoided, the welfare of the animal must come first.

Several docents commented that they did not want to injure the animal while handling. In particular docents perceive the birds as much more fragile than any of the other animals. When handling the animals for the first time, one docent expressed nervousness about her lack of skills as a beginner. She recognized that she could only practice for so long with props and eventually had to transition to the real live animal, but

was still anxious about it. She said, "I am so afraid that I will break its legs and I don't want to hurt it…I just had to get my nerve up to move from the cup to the bird." The cup was a training prop that helped docents learn to keep the falcon balanced on the glove.

In addition to concerns about physically injuring the animal, one docent believed that mishandling an animal could lead to a change in the animal's mental state as well as their conditioning. "I know from working with dogs, that you don't want to confuse them. You know, if too many people make a mistake, then the animal is not going to be good," one docent said. Staff members and volunteers monitor animal stress levels using behavioral cues. When a handler does not follow protocol for working with the animal, stress signs can become visible. Mental stress can be as dangerous to the animal's welfare as physical injuries. Left uncared for, mental stress can lead to stereotypic behaviors and self-injury. In addition, the animals will adapt their behavior to that of a handler. If handlers' use poor techniques, the animals can become conditioned to responding in a negative fashion when handled. For example, the birds are conditioned to step onto the handler's glove. If a bird is frightened away from the glove, the bird can quickly fall into a pattern of trying to fly away from the handler. Ultimately these behaviors become difficult to correct and lead to high levels of stress on the animal.

The interviews revealed that the docents understand that the animals are part of a Museum or zoo collection. The Museum is accredited by the American Zoological and Aquarium Association as well as permitted by federal and state agencies. Some docents believe that animal care and welfare must be placed before the personalities, feelings or

needs of the docents. One docent said, "The animals matter more than the feelings of the docents." Of this group, several docents shared the idea that the Museum is held accountable to other authorities and therefore must hold docents to high standards when handling animals. "If the Museum doesn't take good care of the animals, they could lose them." Several other docents believed that regardless of other authorities, the animals must be the priority because they are important and deserve high standards of care.

Individual docents recognize the responsibility of their actions toward the animals that are under staff and volunteer care. One docent went so far to say, "They are live animals and if we don't handle them correctly we could kill them." This docent went on to express that the animals are not easily replaced. Each program animal has some minimum amount of preparation training time before it can be placed into the docent rotation. For example, a kangaroo rat may only need a week or two to become comfortable with its transport container, but a bird of prey may take six months to a year to be ready for general handling. The docents recognized the value of the time and effort required to prepare animals for use in the Museum's education programs. Furthermore, the docent continued on to say that the reason visitors come to the Museum is not to talk with individual docents, but rather to see the variety of animals. She said, "Visitors like to talk with docents, but they don't drive all the way out here to see a bunch of retirees, they want to see the animals."

One docent commented on the idea that the docents' focus on grounds is the visitors and not the animals. Often when docents are holding a bird and a group of visitors gather around them, the docent attention shifts completely off of the animal to the

visitors. While connecting with visitors is critical, the animals need constant monitoring throughout their use. On occasion the animal can be moving off of its perch (Mexican Boa or lilac-crowned parrot) and shifting out of the docent's reach. Any of the other animals can become extremely close to a visitors' body without the docent recognizing the danger of the visitor touching a scorpion or a hawk's foot. In fact one docent shared a time when a visitor "stuck his hand right by the scorpion's tail, he was ready to pick him up."

Another time when attention has been shifted off of the animal is during training sessions. Docents have noticed when working in pairs with one trainer, that some docents tend to focus their energy on the trainer and not the animal. In particular docents that tend to be critical of training staff, will focus on exactly the way instruction was given to the point where the message is lost. For example, if an owl is standing too far over on a docent's glove, the trainer may suggest the docent rotate their hand slightly to have better control over the owl. The manner in how the trainer makes the suggestion easily becomes the focus of the session rather than the importance of the glove position relative to the owl. Therefore the docent leaves the session remembering that Trainer A had to touch the docent's glove rather than explain how to move the glove and the owl and its position became secondary. Some docents regard the trainers as "other" or an outside group and tend to not trust the trainers as educators. A major problem with viewing the trainers as outsiders is that docents tend to perceive conflict when there may be none, or at minimum they exaggerate negative evaluations about the trainers' abilities to teach (Jackson, 2002). Viewing trainers as outsiders also leads to less cohesion among

the docent and trainer team when learning animal handling skills. Lack of cohesion in a team is typical for new groups, but usually decreases with time (Kayes, Kayes, & Kold, 2005). Yet even after several years of interactions, some docents are still focused on an "us – them" mentality.

Several docents wanted to know more details about why each handling technique was used with an animal group. One docent said, "For me, I just need to know why. I want to know why so that the animal is not hurt". She believed that understanding how each technique relates to the animal's welfare would make her a better handler. Both understanding the rationale behind the techniques used would help her remember them more easily but also it would focus her handling skills on the most important aspects of each skill.

A few docents shared that they have "heard" in the docent core that there is no need for all of the training. This idea is based on the fact that the animals' welfare has been taken care of over the years and a change in handling is not needed. While there have been animal injuries and deaths due to mishandling over the past twenty-five years, these docents do not see the need for change. Fullan (1992) states that to make changes in an organization, one must assume that people need pressure to change; not all group members will changes even over a long period of time.

From an animal welfare standpoint, each year there need to be changes made to the handling protocols. As zoological organizations learn how to care for animals in captivity, it would be negligent on the part of any zoo not to improve their handling protocols to take into account new information learned. While often the handling of the

animals stays consistent year-to-year, the products that are used in association with handling change, necessitating training or refresher of some kind. For example, the kangaroo rat was formerly transported in a small plastic container (critter keeper) but was changed to a diorama where it could move about in a naturalistic container. Docents needed to learn the ways to shift the animal from its larger enclosure to the new diorama.

Trainers interviewed discussed the need to constantly review animal handling and husbandry. Husbandry, diets, training plans, and behavioral notes are reviewed quarterly and as needed. The training staff thought it was important for docents to have some understanding of animal welfare concerns. While trainers felt like they invested adequate time on the topic of animal welfare in classes and training sessions, they were frustrated that not all the docents shared their ideas about animal care. Trainers mentioned feather damage on birds as a source of frustration. Trainers talk to docents about where the feather damage can happen and how to prevent it, but several docents did not understand the importance of crisp feathers on a bird. Trainers believed that the docents viewed the animals as a kit rather than a live being.

Trainer Authority and Experience

Docents discussed their ideas about the training staffs' level of authority and experience. The perception of the authority of each trainer varied greatly among the docents as did the idea of how much experience each trainer possessed. "You know I am not going to listen to her because she isn't down at Raptor Free Flight, she is not the expert," was what one docent said about one of the trainers. For example, several

docents said that level of authority or support given to the training staff was minimal by the Museum administration and was one barrier to docent achievement. "If the higher ups don't give you all support, then the docents won't listen, why should we?" said one docent. Training staff has limited ability to remove docent animal handlers that are not working well in the training program. Like all classrooms, teaching time is limited and sometimes dedicated to a minority that may not achieve the goals of the class. Several docents interviewed suggested that training staff should have more authority to remove docents who were not working at learning handling skills. "If they are not working, then they do not deserve to handle animals," said a docent.

This group of docents in favor of the staff member having greater authority went so far to say that the animal handling training ought to be run as a "dictatorship". He said, "You should call the shots, you know what is best for the animals, and you know of the docents can't handle it, then too bad." They believe that the staff member should have the ability to choose which docents work with the animals, and then remove docents who do not work studiously at learning handling skills, and have on-going evaluations. These docents did not see a conflict that those who would be participating in the training would not have a voice in the selection and training of docents. Dunbar (2004) states that there are different power bases including expert power which is derived from having knowledge needed in the field. The trainers are experts relative to the volunteer docents and would have the power to make animal handling decisions. The animal welfare is paramount and therefore justifies that the animals must come before docent feelings.

Yet another barrier that was revealed in the docent interviews was the docent perceptions of the trainers' authority regarding animal handling training. Three of the staff members who work with docents are significantly younger than the docents; the trainers are between 22 and 35 while most docents are over 55 years old. Several docents said that they have a difficult time taking direction from young staff members. One docent said, "I used to give instruction to people older than your trainers." Another said, "Well I have been out of school a long time and I am not used to having young teachers, it's a little awkward." The docents perceived the young staff members to not have the experience in working with people and general life experience. Young supervisors of volunteers face the same authority challenges as those supervising an older paid staff members (Ellin, A, 2000; Ramsey, R., 1993; & Vecchio, 1993).

The youngest trainer has a specialty in birds of prey and was viewed by docents as an authority on those animals, but the assumption was made that she did not know about handling other species. One docent said that she would respect the trainer's recommendations about the birds but not about the snakes or other animals in the collection. She said, "I would trust anything she would say about the kestrel, or the screech owl because she does free flight. But you know, she probably wouldn't be the one I ask about snakes. I don't know, maybe she knows, but I doubt it." Docents also compared the trainers to one another and ranked them in terms of experience with animals, based on docent perceptions rather than knowledge of trainers' backgrounds. "If they (the young trainers) could come out on the grounds and walk in our shoes a bit. They might get confidence if they worked out there," said one docent. She was not aware

that the training staff regularly works with live animals and visitors on the grounds and for special events. Staff members do have exposure to the kinds of interpretation challenges that a docent might face in terms of animal handling.

Some docents also gave instant authority to the two trainers who had previously been docents. In several interviews docents commented that these two trainers knew what it was like "in the trenches" or out on the grounds with visitors. "Well you know, they have been out there. I mean they know what it is like to have a school group come up and all you can do is answer question after question until your mouth goes dry," said one docent about the trainers who were previously docents. Therefore the suggestions about how to handle the animals and information about animal training were accepted more readily by many docents.

In nearly every interview the docents said that the trainers should not be responsible for being the "authority" or expert on everything. One woman said, "You should be able to use the global we, and say we have decided this is how it is going to be." The trainers should have the ability to use the organizational "we" when introducing large policy decisions. The institution should stand behind the trainers. Many docents also commented that the trainers should emphasize the accreditation process for which the Museum must be prepared as well as the federal and state permitting agencies, like United States Fish and Wildlife Service and Arizona Game and Fish. In some cases, decisions that are not popular with docents could be presented as requirements by the agencies or accrediting organizations. Therefore the trainers are not responsible for all unpopular decisions in the eyes of the docents.

Trainer Consistency

A major barrier that was discussed with great emotion was the idea of consistency between trainers and training tools. For example, docents recommended that the training documents and training sessions use the same kind of language. But the docents focused more on the actual consistency between individual trainers. One docent said, "…you know, one week my glove form was great with one trainer and then next week it sucked. How can that be?" Docents believed that each trainer was not teaching to the same level as the others. One trainer might instruct docents with detailed information about handling a falcon while a second trainer might emphasize just the basics. In testing the expectations of the trainers might vary as well. For example, certification forms require the trainers to check off whether a docent has demonstrated a specific handling skill. While the certification form was written as an objective testing form, there still are areas that are not as discrete. Different trainers have different levels of comfort in allowing docents to complete the certification.

The docents have singled out one trainer in particular as a difficult trainer to work with and to complete the certification process with her. One docent described how two training sessions with different trainers varied. The docent was learning proper glove form for handling a kestrel or small falcon. The first trainer instructed the docent to pinch the thumb and first finger together to keep the leash and bird's equipment secure in the glove. The actual contact point where the thumb and fingers meet was not discussed. The trainer observed the docent handling the falcon and told her that her form "looked great." On the next training session the docent worked with a different trainer who told

her that the contact point between her thumb and first finger must meet in the second section of her finger between the second and third joint. The trainer went on to explain that the leash is less likely to slip out of the docent's grasp if the leash is held this way. Finally the docent came back for yet another training session with the first trainer and asked how the thumb and finger should be pinched. No specifics where given about pinch location. When the docent asked the trainer about what she had learned in her last training session, the trainer was unaware and told the docent that she would need to check with her supervisor on that detail. Ultimately the trainers decided that the pinch could be anywhere on the finger and that one trainer had much more stringent standards than the others. This example demonstrates the lack of standardization in training. The trainers need to use more pairing time where they work together so they can follow same standards (McCaughtry, et. al., 2005).

In other cases the stringent trainer had given extra information that was correct and part of the docent certification. Many times different trainers watched docents and observed docent performances that were adequate, but the docents could not perform at an even higher skill level if they worked on one or two fine points. Often the training staff in general did not work to move docents beyond the certification level. Trainers did not spend large blocks of time trying to facilitate docents' personal animal handling growth beyond what was needed to perform at the Museum. The one stringent trainer was more likely to continue working with docents to help them learn above and beyond what they needed to complete the certification. Some docents view this approach as helping them and appreciate the extra time and attention given to them. "Gosh, this is the

first year, you know, that I really understood why it mattered to have the right length jesses. You know, it is the extra time one-on-one that does that," said one docent. (Jesses are part of the leashing system used with birds of prey.) However others find this constant work to be overwhelming and nerve-racking. One docent said, "it was just one thing after another and I just couldn't keep up."

One docent mentioned that she appreciated having different trainers for each training session, because often she would learn more overall. Each trainer might pick up on a subtle behavior that she could modify to make her work with the animals easier. This docent gave an example of how to handle a large snake safely with one hand. One trainer demonstrated a wrapping technique where the snake is actually coiled around the handler's arm by the handler, while another trainer showed the docent a way to rest the bulk of the snake's body on the arm while maintaining the front portion of the snake in the same hand. "I like having some options with the animals, so if something isn't working with the snake, then I can try something else," said one docent. The docent had the option of trying both techniques and selecting the one that was best suited for her.

The idea of trainer consistency in previous years was discussed in the interviews as well as in the survey to all docent animal handlers. Docents have recognized that in previous years there was a much larger issue with consistency. Docents indicated that while the trainers did not have the same training techniques, the real issue was with what was acceptable at certification and the general approach of trainer and docent interaction. The docents viewed one trainer in particular as much more strict in the certification process. The phrase "caught not taught" was used to describe the testing approach.

Trainers, in particular the strict trainer, did not communicate the same kind of certification process for each docent and as a result the docents or students felt frustrated (Lorsbach, Jinks, & Templeton, 2004). In other words the docents' perception was that the trainer was most interested in few docents completing certification.

When docents were questioned about how the failure of docents in animal handling would reflect on this trainer, the docents admitted that they had not thought about it. In reality, the fewer docents that complete the training and certification, the lower this staff member is performing. Her job requires the preparation of docents to handle animals. It is not in her best interest to see many of them not complete certification. The docents said that they had not considered this point; they really thought she was "out to get them".

Once the docents had begun to view this trainer as enforcement rather than a teacher, her level of authority changed. Though it was in her job description to explain to a docent how to work with an animal, they were not as receptive to her suggestions since they perceived her as an enemy. Identity-based conflicts may start out as individual differences, but then people in conflicts look to gather group support and issues of loyalty, solidarity, and self-protection become apparent (Ohlott, Chrobot-Mason, & Dalton, 2004). Once these conflicts begin, they can become disruptive to the entire group. Docents have commented over the years that this trainer has changed her approach. She is still as strict as she was the first years, but her teaching and interpersonal relationships have changed. All staff members have engaged in brief workshops on how to teach. This example illustrates the need for constant staff member

training and consistency in training standards.   Some of the docents have seen this shift

and are now more willing to work with her. However, a small group still views her in the

same light and is unreceptive to her ideas and training methods. The perception of a

trainer or educator as someone who seeks to fail rather than facilitate success and

learning is a difficult barrier.

Docent Feelings

Throughout the interviews docents talked about their feelings toward the animals,

the staff members and their self-image. Docents gave examples of experiences they have

had with learning to handle live animals, and their descriptions were more emotional than

throughout the rest of the interview. In two interviews docents were at the verge of tears

talking about their experiences. This category was by far the most emotional for all

docents interviewed.

Fear of the Animal

Several docents talked about overcoming their fear of the animals. Initially they

were afraid to handle certain animals. After recognizing the animal was conditioned to

be handled and not likely to hurt them, the docent was willing to work with the animal.

Several docents were proud of their accomplishments in working with the animals

because initially they were so afraid. In the interviews several docents talked about

snakes being scary to learn to handle. "They just move so differently, unpredictable I

think. Or maybe I am just not too used to them," one docent shared. She said that on one

level she is afraid of being bitten, but at another level she is fearful based on not being comfortable with the animal movements. Initial fear of snakes is relatively common (Morgan & Gramann, 1989).

Most helpful to overcoming the fear of handling animals is to watch an experienced handler work well with the animal. The opportunity to see the animal moving gives the docent time to become comfortable with the animal's normal behaviors. Also watching another person work with the animal demonstrates that it can be done safely. With animals other than snakes, some docents felt fearful of injuring the animal while handling it. Especially with the small birds docents thought that if they did not master the handling skills quickly enough, they might jeopardize the animal. The docents do care deeply about the well being of the animals. An experienced trainer who demonstrated snake handling helped most docents overcome their fear.

Another fear surrounding the animals was the fear of doing something wrong. This fear was not necessarily that the animal would be injured or that the docent would be hurt, but just that the actions were wrong. Learning requires that students move into uncomfortable domains and sometimes stay there for a long time before reaching mastery (Conner, Wright, Curry, DeVries, Zeider, & Zeider, 1996). Many of the docents expressed that they just want to do everything well and sometimes the animals challenge them. "Luna just wouldn't get off my glove and I don't want to do the wrong thing, but she was not moving. I was afraid to tip my hand," one docent said. Working with animals presents many variables even for the best student. Concentrating on not doing anything wrong can sometimes be a distraction for some docents. These individuals are

so concerned about doing everything right, that they sometimes are not able to listen to instruction and just move their body as they are being told. The docent is focused on what they have learned and want to demonstrate those skills, but at times flexibility is needed.

Trainers did not mention fear of the animal as a potential problem for docents. Trainers have talked informally about how people who are frightened of the animal tend to never become great handlers. But overall the training staff is comfortable with the animal collection and did not mention in interviews that docents might be fearful about working with the animals. Trainers seemed to focus more on the strained relationships between docents and staff members, and docents being fearful or intimidated by staff members and not the animals.

Relationship with Training Staff

Most interviewees said that they or a docent they knew have felt intimidated by the training staff. Initially the training staff was viewed as not approachable and critical. In terms of learning, docents came to training sessions on edge and often the trainers appeared on edge too. Knowles (1990) recommended climate setting as one aspect in helping adults to become ready to learn and thereby lessen nervous interactions. The intimidation seems to have arisen from the notion that the handling skills that docents perceived as adequate were no longer quality skills. One docent said, "We have been doing it this way for twenty years and the animals were fine." The docents had never been told as a group that they needed to change or improve one specific area.   The

training staff members may have detailed the reasons for the change, but it was still miscommunicated to the docents. The trainers did not continue to adapt the message to be understandable (Burgoon, Berger, & Waldron, 2000). The fear of change combined with a direction coming from training staff members they did not know well created a sense of intimidation.

Many docents expressed that when the training first began they felt nervous around the trainers. "I have never worked with her before and she was abrupt," said one docent about the one of the trainers. Interactions between training staff members and docents felt uncomfortable and forced. The docents said that they were not confident that they would do well and were nervous about having to work in front of a staff member that they had not worked with and did not know well.

Most docents did not believe training and evaluation for animal handling was needed. So combined with intimidation by the training staff members, general nervousness around staff members and perceived lack of need, docents felt as though they were being forced into an unnecessary program. One docent said she though the idea of taking classes each year would "drive me bananas". When asked to further explain, she said, "…that there really is not a deep need for this much training, as handling methods do not change very often."

Docents have grown more comfortable working with the training staff members over the past few years. The docents interviewed seemed to give a very divided opinion about how much time staff members should dedicate to docent training and needs. Many docents mentioned that the training staff members have other job responsibilities in

addition to docent training. These docents believe that the staff members should have some dedicated time for docents. A docent said, "You have to feed and take care of the animals, and the education staff needs, and special programs and train the animals. Its not like you guys don't have anything else to do." This docent recognized animal training by the staff as a priority to maintain calm and well behaved animals. Yet other docents believed that the training staff should be available at any time the docents might have questions about animal handling. "If I can make time for you (staff), then you should make time for me," said one docent. This group does not see that the care and maintenance of the collection is the trainers' responsibilities.

Each trainer has a different relationship with each docent. In one interview a docent shared her feelings about the trainers she had worked with the last year. She said that she preferred to work with the trainer that was "most direct and upfront." Working with a confident and direct trainer can impact the perception of the training and encourage a sense of empowerment among docents (McCaughtry, et. Al., 2005). She was not as comfortable working with the other trainers because they were not as clear to her. However, many of the other docents interviewed felt that they did not like working with the direct trainer as she was abrupt and in their opinion rash. "She was rude to me and I don't care to work with her," said one docent of this trainer. Docents viewed the other trainers as easier to get along with and made the docents more comfortable. Oddly, some of the trainers that have had harsh criticism by docents have also received the highest praise from other docents. These divergent opinions may reflect the learning styles of the different docents.

Personality Differences

Docents have said that each day of the week, with its unique group of docents, has it's own personality. Each day has a different work group and a management style. For example, Fridays are extremely regimented. Each docent who volunteered on Friday received a small card listing all the activities and locations for the activities for their day. On the other hand, those docents who work on Thursday walk in and sign up for what they want to do and where on the grounds they wish to be. Saturday docents do not even sign up for their activities. Often it is not clear how many Saturday docents are on grounds as they do not follow or keep a schedule. Most of the docents on any given day have chosen the day because they feel at home. There are a few exceptions where docents do not have any other free days and therefore must work on a particular day. But for the great majority, the docent's individual personality somehow fits with the day they are working. Again working with so many different people causes challenges for staff members in terms of standardization.

Docents suggested that some docent personalities might also become a barrier during training session. The docents occasionally have to work together with a trainer in a paired training session. In certain instances docents have shared that they felt as though one strong personality was dominating the session. One docent said that "we as docents can be just vicious to one another" when coaching. This statement was shocking because so often docents talk about one another as a close-knit family. The more standardized the animal handling training tasks are, the greater the unity among docents. If docents perceive that they are all receiving the same training, there is a sense of fairness. More

attention is not dedicated to the most outspoken docent and the quiet docents will hopefully feel as though they are receiving enough instruction and attention. Task-related mental models encourage team members or docents to be guided to the same objective (Salas, Sims, & Burke, 2005). Docents would work together better if the training sessions were focused on the animal handling skills rather than the team member or docent.

Specifically, examples were given where the trainer was assisting a docent who was having difficulty picking up a snake, and the second docent was criticizing the technique. The docent's feelings were hurt, not by the critique, but by the delivery. The second docent was not gentle, nor did he recognize the behaviors that were done correctly. The first docent found herself not wanting to work with other docents after that incident. Again the role of effective communication or the lack there of is seen.

Personality also factored into perceptions about trainers' authority to prepare docents to handle animals. Docents commented that the trainers with better relationship with docents tend to be viewed as having more authority and greater respect. The trainers who had perceived attitudes of wanting to "fail" docents did not have the respect of the docents. One docent said, "Its like Trainer A is waiting to catch you and say, gottcha." Another docent shared, "Trainer A doesn't say a thing until you screw up and then she just does down the list of this and this and this and I didn't even have a chance." Docents described this trainer as overzealous in working with docents and therefore again she commanded less respect from the group.

Some docents have tough personalities; the docents appear to be resistant to these strained interactions and can use criticism from others to help improve their techniques. However many of the interviewed docents said that they are sensitive to criticism and do not like receiving constructive criticism even when warranted. Trainers risk decreasing motivation when correcting docents on animal handling skills (Truluck & Courtenay, 1999). Teaching style where docents can learn by recognizing or solving a skills problem would benefit the group more than peer or trainer critique (Raschick, Maypole, & Day, 1998). Docents are challenged by the trainer, themselves, the animal, and fellow docents to learn through their skills of observation and experimentation rather than a pure critique.

Embarrassment and Forgetfulness

Docents shared that they do feel embarrassed when the training and certifications are not proficient. In fact one docent said the most embarrassing thing to happen to her in her life was to walk back into the docent lounge, have other docents ask how her certification was, and have to tell them that she "failed." In fact, that scenario was common as docents looked back to the first year of animal handling training. The docents did not want to participate in the training and certification, but at the same time they desperately wanted to complete the certification process to continue handling animals. Emotions have the ability to impede or motivate adult learners (Dirkx, 2001).

Docents who did not complete certifications the first time though the process tended to empathize with one another. Docents would talk through the perceived

problems of the certification process. In the first two years the docents agreed that often the problem was the trainers' stringent interpretation of the guidelines or handling protocols. Some docents also said that the trainers were looking for any part of the handling process to fail the docent. "Like if it wasn't going well in the first two minutes, why did she make me do the whole thing. It is just embarrassing," said one docent.

In the past year of training, the docents interviewed all agreed that the training process has become easier to work through and the expectations are clear. Two of the docents interviewed still expressed concern over being embarrassed if they did not handle the animal properly. Yet another docent commented that there are some individuals that are easily embarrassed and perhaps that is a personality trait that cannot be changed. She said, "You know, these were the kids in school that nearly had a panic attack before each test, they would have to breathe, breathe, breathe."

The docents who recognized they have forgotten parts of the handling lesson from one training session to the next were slightly embarrassed about their forgetfulness. More common though was the theme that docents are older individuals and therefore they likely are forgetful and cannot be held accountable for that because they are older. Most docents interviewed commented on the fact that the docent population does have many seniors. However those that were interviewed rarely admitted to being forgetful themselves.

Family of Docents

All docents talked about the idea that the core of volunteers is a "family" and close-knit group. Docents felt like the family group was a support system through the training process. "We would wait for one another to come back to the docent office to see how each other did," said one docent. However several docents mentioned that when docents who were not in favor of the training system began speaking about it negatively, that affected the "family." Some docents felt forced to be quiet if they supported and favored the changes in animal handling training. Those that did not like the changes were vocal and wanted the family group to rally behind them. In some cases, the "family" could cause stress on the individual docents as they were preparing for certification.

Like all families, occasionally there are tensions within the group. Certain animals have limited numbers of handlers due to the animal's comfort with multiple handlers and the animal's availability. For example the Harris' Hawk requires physically strong handlers because it is heavy, docents who are at the Museum nearly every week to work with the bird, and up to three handlers per day so each person can work with the bird a minimum of once every other week so the bird gets to know each person. Several docents mentioned that there was tension among the docents because a favored animal was not given to all the individuals who wanted to handle it. One docent in particular said that the other docents that wanted to handle the bird complained in front of him about "someone is taking my spot." This docent said he felt very uncomfortable and as though the other docents were upset with him for something that was out of his control (selection of animals is based on staff assignments).

Another concern that was voiced by a weekend docent was the level of fairness between adult docents and junior or teen docents. The teen docents must meet the same requirements as the adult docents to be eligible to handle animals. Teens only volunteer on the weekends and therefore only interact with two different days of adult docents. One docent had expressed some concern over the fact that the teens could take out animals and it really was not fair because they were not as committed to the Museum as the adults. The teens work for a minimum of one year and docents must dedicate at least two years of volunteerism after general docent training. The adult docents view the teens as transient and perhaps not as responsible as the adults. The docent admitted that she was just jealous of the teens being out on the grounds with the visitors doing the same job she does. In this case the family group does not extend out to the teen docents.

However the family group was helpful to docents in times when they knew that they no longer has the ability to physically handle the animal. In these cases, the docents could turn to their peers for support. One docent who was not part of the study shared that she no longer handles animals but is delighted to still watch her peers working with them. She recognized that she could no longer safely carry the animals due to arthritis and a weak upper body. The docents had been kind to her in suggesting other docent activities and often give her first choice of her favorite kits.

Feelings of Achievement

Multiple docents expressed that during this most recent year they felt and heard other docents say that they felt as though they achieved something when they completed

animal certification. The training and certification process had transformed over the years from something of an unwanted hoop to jump to an honored position. Currently docents are proud to say that they completed the training process. One docent said she explained to a visitor why he could not touch one of the falcons and she went on to tell him, "…all docents who handle animals must complete rigorous training and certification to have the privilege of handling the animals. They don't let just anyone handle them."

One docent, who works as a professional career coach, suggested that the trainers encourage the idea that completing certification is a prize or a great achievement. Another docent said he thought docents on his day "wore their certification as a badge of honor." In previous years completion of training was not meaningful, but the docents believed this year that they completed something "worthwhile."

Docents should feel proud to complete the certification process according to the trainers. One trainer said that she wished the docents really viewed animal handlers as an elite group of docents. In her opinion rather than 20 docents a day handling animals, this trainer would like to see the program shift to seven or eight docents a day that truly specialize in animal handling. Many of the skills transfer over from one animal to the other, and these specialists would become strong handlers benefiting the individual and the Museum.

Docent Ego

Volunteering can provide an opportunity to experience success in retirement years (Newman, Vasudev, & Onawola, 1985). Volunteering is an activity through which

individuals can impact their community or an organization (Morros, Pushkar, & Reis, 1998). The gift of volunteer hours to an organization can lead a volunteer to feel personally united to tied to the organization.

Perceptions of Ownership and Entitlement

Many docents talked about the ideas of ownership, entitlement and rights as a docent regarding the animal collection. The docents interviewed talked about the docent core rather than about their own feelings for this theme. Most of the interviewees said that docents tend to feel like they own the Museum and should have the ability to set policy and create protocols. It seems understandable then that the idea that staff members may want to change protocols upsets the group of docents. The animal handling protocols began changing dramatically four years ago and docent representatives were involved in the process. However, the general docent population did not believe that they were represented. "We had no input on any of this (training process)," said one docent. If an individual docent did not agree with decisions made, often that docent began attacking the staff members rather than talking with their docent representative.

Docents shared that they heard many docents talk about docents as expert animal caretakers, handlers, and trainers. The docents did not see a reason for staff members to become involved. Docents talked about each other as experts and did not trust the new training staff members. Nearly every docent interviewed said that they heard more than one docent say that they "already knew how to handle animals" or "I know it all, why do

I have to take a class?" The new training staff members were viewed as outsiders coming in to interfere with the system that was working.

Several docents had approached the researcher three and four years ago suggesting that the husbandry techniques were flawed. The docents explained that they knew what the birds needed and that the training staff members were not addressing the birds' needs. For example, docents disagreed with how the birds were being trained. The staff members designed and created housing that was above standards set for birds both by the accrediting and permitting agencies the Museum abides by. Staff members had specific training in animal husbandry but the docents did not accept the credentials or experience of the staff members.

In the first three years of gradually changing the docent training and certification procedure, docents did not talk directly to the training staff members with problems or concerns. The docents talked about a time when others felt entitled to talk directly with the Executive Director of the Museum rather than their immediate supervisor about docent training concerns. Docents believed that their volunteer status meant that they were exempt from the chain of command and could take up day-to-day concerns with the Director. These volunteers could be liked to the siblings who feel comfortable enough to fight in a family setting; they are secure in the relationship with the family or in this case, the organization (Shedd, 2005). Again lack of clear standards fostered the confusion about what is appropriate communication.

Perfect the First Time

A group of docents said that they would describe themselves as having "Type A" personalities and they think most docents do. He said, "Face it, we are Type A's and that's why we are the way we are." So the idea of trying to learn a new skill and not be perfect at it the first time is threatening to docents. They do not want to appear like they need to learn something. Docents appear to personalize this concept. They feel like if they need to be taught something it implies they are not doing the skill perfectly and that is a reflection on them. One docent said that at times he feels like he is more important than his skill level. To focus the training session on his skills somehow diminishes whom he is and what he has to offer the Museum.

Many docents commented that staff members have not gone the next step in training, which in their opinion would be on grounds observations of docents while visitors are present. However, one docent said that she would not want a staff member watching her on grounds. She said she "would feel like she was a trainee and the visitors would not think I knew what I was talking about." The focus was shifted from knowing that she was handling the animal safely and appropriately to what perception the visitors had of her. The docent would have felt comfortable she said if staff member acted as a visitor and made no corrections about her form. But again her focus was on the perception of her and not on the visitor experience or the animal safety as the guiding principle for how the training ought to be conducted.

Lack of Diversity and Former Roles

Many of the docents are retired professionals who have had a leader role in their organization or community. While docents are diverse in their interests, they are a somewhat uniform culture: upper-middle class, Anglo, retired professionals. Most of the docents have been comfortable leading people and have had younger people work for them. Many docents have commented that they think one problem with the docent core is that the docents have been leaders and have a difficult time shifting into a volunteer role. The docents' input and ideas are important, but they are not the only factor when decisions are made. Docents who were interviewed said that they thought some individuals would always be difficult to work with based on their past experience. Yet one docent's response to that was, " it takes a good leader to know how to follow." She learned this idea from her career in the military.

Numerous docents have said that staff members cannot "get rid of docents" no matter how difficult or inept. Docents believe that their former roles in the community or corporate world protect them as volunteers. Even if the docent does not follow procedures, the Museum might want to retain the docent as a valuable asset to the organization. Docents who believe that they are part of the Museum "forever" may tend to worry less about following procedures and protocols.

Teaching Techniques

Throughout the interviews docents talked about the techniques used in the classroom and individual training sessions. Each docent talked about how he/she would

design the training for docent animal handling. Many docents built on the current

training process but pointed out methods that they did not believe were useful to them.

Docents suggested additions to current practices to make the training easier.

Live Demonstrations

All docents interviewed said one of the most useful portions of animal handling

training was the demonstration of handling by the trainers. Demonstrations provided a

means for docents to see the details of animal handling. Trainers would show docents

each part of working with an animal from picking up an animal, preparing it for transport

to the on-grounds interpretation site, handling it, and returning it to its proper enclosure.

Trainers provided concrete examples for docents to observe and time for docents to

process information, reflect and ask questions (Little, 2004).

Second to demonstration, docents all believed that hands-on work with the

animals was the best method to learn animal handling skills. Docents want the

opportunity to work with the animal prior to certification. Ideally docents prefer to have

the demonstration by the trainer first and then work through handling the animal with

trainer help. In terms of docents' learning styles, they seemed to agree that most of the

group needed to see or feel to learn. For example, they said they need concrete examples

either through demonstration or their own hands-on experience. Kolb (1984) would

consider them accommodators, those who need to see concrete examples and experiment

with hands-on activities, or divergers, those who need to see concrete examples and then

reflect on the process. In addition to the hands-on work with the animals, docents found

mock activities useful. Each class had some hands-on component, such as working with a model bird to practice shifting a bird on and off of a perch.

Classroom Hands-on Activities

Other activities that docents found helpful were active lessons rather than lecture style classes. Each class had several activities that provided docents with an opportunity to work in small groups. Docents specifically mentioned that they found activities like identifying poor animal handling techniques in photographs useful. The activity challenged the docents to find one, often not obvious, mistake that the handler was making in the photograph. One docent said, "My favorite was the what is wrong with this picture game because you really have to know your stuff to figure it out." Having the ability to point out what is inappropriate and how to change it so the handler is handling the animal well demonstrates a good understanding of animal handling.

Another activity that several docents mentioned as useful was an ordering game where docents put photographs of each step of animal handling in a specific order. Often the order is not critical in terms of the animal welfare, but rather the order does effect the docent's time. For example, if a docent does not check the outside temperature and pack ice inside the cooler before packing a snake, they then have to go and check the temperature, get the ice pack, take out the snake, place the ice pack in the ice holder, place the divider so the animal does not touch the ice pack holder, and then replace the animal. The time difference can be several minutes to nearly 10 minutes if the docent does not work quickly. Therefore many docents appreciated being prompted to think

about how to organize their time in the animal building. Only one of the docents

interviewed thought that these added activities were only mildly useful. This particular

docent does not often volunteer to work in groups and since these were group activities,

she may have been biased.

Other hands-on activities or active simulations that were mentioned as useful to

docents were working with cups of water as mock birds of prey. The cup was balanced

on the glove to help the docent learn about keeping the glove stationary even when

walking or shifting from one foot to another. Many docents took advice on how to

strengthen arm muscles and posture awareness from the trainers. One docent said, "My

husband thought I was nuts because I was walking around the house with a bottle of

water on my fist." Docents felt that having more upper body strength before working

with the bird gave them a more confidence in their strength and ability.

Several docents admitted that they initially thought the games and activities

would not help them become better handlers. These docents were some of the same that

were somewhat wary about the idea that they needed a class as a refresher for their

animal handling skills. "I didn't like the idea of having to go to class, but the activities

were great and really helped refresh me…why we have to do it this way or that," a docent

said. After participating in the activity, the docents changed their opinions.

Classroom Presentation

In addition to a live demonstration of animal handling by trainers and hands-on

activities, there was a lecture component of the classes. Most docents did not comment

much at all on the lecture portion of class. Whether the docents did not remember the information that was given in the lecture or it was not recognized as a lecture given that it was sandwiched in between activities is unclear. The information given in the lecture was also found in animal handling documents as well as talked through during many one-on-one training sessions. It is difficult to isolate whether this information was gathered at all during the lecture or other ways since docents do not seem to remember it.

One suggestion to add to the classes was the use of video recording. Two different docents suggested that trainers record when animals are difficult to handle and the appropriate actions to take. A docent said, "I know you can't make the bird bate off the glove, but it would be good to see how to handle that." Often the only way that trainers can convey how to handle these awkward situations is through a simulation. Trainers cannot encourage animals to behave in a difficult manner because that would ultimately be counterproductive for animals and handlers. So the only way docents can see the animal behave poorly is when it happens to them the first time. Often these cases happen when a trainer is not present with the docent, leaving the docent in a challenging situation. With the use of a video, the trainers could work with the animal once while filming and then be able to show the difficult handling situation to all docents.

About half of the docents interviewed felt that the classroom portion of training should be mandatory every year for all animal-handling docents. These docents viewed the class as a refresher needed by any and every handler. "…if docents don't like going to class than they don't have to handle animals. The class is needed so everyone is handling the same way," said one docent. Another docent went on to say that the

classroom refresher was a non-threatening way for a docent to find out about general knowledge they should know. The class would be an easy way to obtain answers for the docent if they were embarrassed about not already knowing the information. "I hate to say it, but sometimes I sit in class and wait for the answer and then I'm like, I didn't know I was supposed to know that. So it is good, not threatening," said a docent. Other docents believed that classes out to be optional for experienced docents. So if a docent was continuing on the same animal, they should have the option to attend or skip the class. In this case, the docents were divided on the importance of value of classes for experienced handlers. Some view themselves as needing continuing education and are interested in life-long learning, while others do not.

Animal Standard Handling Protocols

The Animal Behaviorist and her staff members wrote the animal standard handling protocols or animal protocols. Each year the staff members have revised the documents clarifying instructions and also reordered information to make it as user-friendly as possible. Docents made two main comments about the animal protocols: diagrams and visuals are needed and the protocols used to be reorganized so one half of the page has bulleted procedures and the other half has detailed information. Currently the animal protocols do not have any diagrams and do not work well for visual learners who may need pictures rather than text to grasp a concept. The training staff members have relied on the classes and demonstration to make up for the lack of diagrams. Two other docents listed specific items that would be helpful to them if they were in the

document. One was a diagram of how to hold raptor equipment in the glove, another was how to line glove up to perch to pick up a falcon, and a third was the method of tying a snake pillowcase.

The second comment about the protocols came from only one docent and when other docents were asked about this idea, they all disagreed with the suggestion. The idea was to create a set of protocols that could be used as a quick reference each time the animal was handled. For example, what are the five most important things to remember when handling the salamander? The second half of the page of animal protocols would be a detailed version of how to handle the animal. Docents that disagreed with this suggestion said that they highlighted or created their own short list to use when working with the animal. The act of creating the list was beneficial to docents because they had to read through and choose the important details they would need to remember.

Nearly all docents interviewed said that they did use the protocols during the training period to learn material or as a reference. Several docents said that they use the protocols throughout the year as a reference. Overall the docents did not view the protocols as difficult to understand or use, but they did not always agree with the information in the protocols. For example, some docents disagree with the upper temperatures that animals can be taken out on the grounds. The owls are not allowed to go out on-grounds to a non-cooled location if the temperature in the sun is over 85º Fahrenheit. Many docents think that this protocol should be relaxed so the owls can be utilized in non-cooled locations at higher temperatures. In this case the docents do not

believe or perhaps understand that the owl physiology is different from hawks and falcons. The confusion may come from their desire to lump all the birds of prey into one group of standards or rules.

Time Limitations and Memory

One theme that was consistent throughout interviews was lack of time for training. While no one said they wanted longer classes, docents did say that they would like to have longer practice sessions or more practice sessions. The number of docents each day limited staff time with them. Some days of the week had 50% more docents than other days of the week, and therefore the training time per docent was often less. The animal's schedule also sometimes shortened training sessions for docents. For example, the only small parrot is often reserved for school programs and was out when docents would have been working with him. Finally, if trainers were flexible with the training schedule and accommodated docents that were not on the schedule, it sometimes lessened time for scheduled docents.

Training staff members expressed frustration especially in cases where trainers were trying to accommodate previously absent docents. Docents sometimes felt rushed and were aware that staff member had to work with other docents. The rushed atmosphere made docents uneasy about the session and more nervous than if the trainer was not on a tight schedule.

Many docents suggested it would be ideal if staff members had more time to train docents on the Museum grounds where the docents will work with the animals rather than

in the animal building. Most training takes place inside the animal building or in a ramada adjacent to the animal building. The docents do not have the opportunity to ask staff members specifics about locations or sites on-grounds. For example, most of the animals have a designated location to be held at each site. This is true for the birds that respond differently in varied settings. Location for birds is critical. Most of the raptors want to have a solid wall to their back so there is some protection. If staff members had the time to walk with docents to different sites, the docents could check to be sure they were in the proper location. "Watch me at the Orientation Room or the Yucca Ramada, because it will be totally different there compared to in the building," said one docent.

   If staff members could complete docent certifications in context on-grounds, it would be more representative of a docent's abilities. Certifications evaluate the docent's abilities to handle the animal and react to animal emergencies. If staff members were out on grounds with docents, there would be time for docents to discuss how they see the animal's behavior. Learning stress signs for any animal requires time watching that animal closely. Without taking the time to have the animal also in context out on the grounds, it is challenging for the docents to accurately represent their level of ability in an artificial setting.

   A larger struggle with time is the idea that most docents said they do not always feel at ease with the trainers. Some of the unease comes from not interacting with the trainers except during the training and certification period. Docents who are uncomfortable around staff members are not as likely to be open to material staff members are teaching. Docents may not retain as much if they are nervous, merely

trying to get through the session but not thinking ahead to the next practice. Nervousness can also make work with an animal more difficult because the animal will not be at ease. Calm behavior is especially important with those animals that are held. Docents said that they would enjoy and appreciate all trainers coming in to docent lunches to interact with the group. The Animal Behaviorist does attend monthly docent meets as her schedule allows, but the docents wanted more contact. One docent said, "It would be great if you could come to lunch and just tell us about what is going on with the collection. Like when you have new volunteers over there, we would like to know that." They also want to know more about staff members as individuals.

Another challenge for docents learning new skills is the tendency to forget new information. In some cases docents felt frustrated when they were unable to remember things that the trainer told them from week to week. Yet even more frustrating for docents was trying to unlearn bad habits. Docents would learn a new technique, but after a practice or two would easily revert back to the old method. This pattern may be a case of breaking bad habits, or it may be the docent not recognizing the value of the new method.

Variation in Individual Animals and Docents

Since each individual animal is different, docents must become comfortable not only with each animal group, but also then the individual animals in the group. For example, four small falcons are in the collection and over a dozen snakes. When a docent is certified to work with either of these groups, they have many individual animals to

check out. The falcons' behaviors change throughout the year from breeding season to molting season. Their behavior may also be influenced by the time of day, whether they have eaten that day, the weather, amount of exercise, just to name a few things. When a docent works with a falcon, all of these factors play a role in how the bird will behave. With the snakes there are variables like the shedding cycle, when they last ate, when they were last handled and the temperature. So docents may have experience with an individual animal, but the animal can still be different each time it is handled due to other factors. The great variability in working with live animals presents a large challenge for volunteers.

Because each animal can be so variable, having docents work in teams of two has been a useful technique. Each docent can see at least two different animals handled, the one they are working with and the one their fellow docent is handling. Working in a pair increases a docent's exposure to individual animals. However, this system can be difficult if the pair of docents do not have a good working relationship. In interviews several docents talked about power struggles within training sessions. For example one docent was extremely assertive in a discussion about how to handle a snake. The assertive docent insisted that the other docent should use the same technique that worked for her. It did not matter that the technique the shy docent was using was correct and easier for her. The shy docent left the training session frustrated, embarrassed, and not willing to work with the assertive docent again.

Docents said that they sometimes felt like critiquing by docents and trainers was an attack on them rather than their skills. The docents occasionally left training sessions

feeling like they had failed. One docent said, "…I felt like a failure, everything I did was wrong. I was devastated that I had failed." Docents interviewed said that they thought the trainer's critiquing approach has improved over the years. Yet some docents shared information they had heard in the docent lounge. One case was of a docent who thought that she was "picked on" about her handling of a barn owl. The docent did not understand the point that the trainer was making, but left the session thinking that the trainer was criticizing her.

Another example of how docents deflect criticism is seen in an example of shifting the focus from the animal handling skills to the trainer. One docent shared a story about when another docent became agitated with the trainer. The training session shifted from focusing on techniques to arguing with the trainer. Any information that the trainer shared with the docent, the docent quickly rebutted without taking time to consider the information. The docent was more interested in arguing with the trainer and being right; the animal and handling skills became secondary. The docents believe that these struggles seem to be personality conflicts.

Cannot Force Docents to Learn Skills

When asked how to help docents that appear to be closed to learning, every docent said that trainers cannot force anyone to learn animal handling skills. Docents believe that a small group of docents are closed to learning. "I think you have to agree, if they do not want to learn it, you can't make 'em," said one docent. Regardless of how interesting the classes may be or how exciting it is to handle the animals, the docents

have to do the work to learn the skills. Most docents (80%) interviewed said that it would be futile for trainers to invest much time in these individuals, as they are not likely to change.

Learning out of Context

Most docents interviewed stated that they felt like the training program was deficient without an on-grounds component. Essentially, the docents learn about handling the animals, packaging them for transport on grounds, and also about stress signs of animals. The visitor interaction portion of docent animal handling preparation is done in the animal building without visitors. The current training procedure reflects a positivist view where skills are learned by the docent and should be transferable to any situation (Hager & Smith, 2004). However, in reality each situation on-grounds can be different requiring practice in many different sites on-grounds with different groups of visitors and different individual animals. By situating the training in a real-life setting with variables, the docents would have a better opportunity to prepare with trainers available to help them. Docents viewed the current training as out of context and difficult to transfer to real life scenarios.

Yet when asked about how they would view having some of the training in a classroom setting versus in the animal building (ability to accommodate more students in classroom), docents said it did not matter. Docents could easily transfer the mock up or simulation enclosures from the classroom to what the real animal enclosures were like in

the building. Most docents said that it would be necessary to take brand new docents on a tour of the building first before the classes so they knew the context.

The visitor and docent interactions with the animals are potentially dangerous due to a minimal risk of visitor or animal injury. Yet this area was one of little attention in the interviews. The training staff members provided simulated a scenario where the trainer was an assertive visitor who was getting very close to or touching the animal. Docents were expected to be able to react in an appropriate manner to keep the animal and visitor safe. However, docents did not usually understand the difference between when the trainer was acting as the trainer or as a visitor. One docent said, "…well I did not know that she was the visitor. I mean she has more authority than me, if she wants to touch the bird, she can. But then at the end, I failed." Docents were extremely upset when they felt as though the trainer had tricked them. Most docents commented that they felt this portion of the training was ineffective and even harmful for trainer and docent relations.

One docent thought an on-grounds training or review by staff members of the docents would be equally ineffective. She said that docents tend to "put on a show when staff are present" and then return to normal bad habits when no one is watching. She continued to say that the docents do not demonstrate the animals as they normally do when staff members are present.

Lack of Mentors

When asked about the idea of having docent mentors for certain animal groups to help give docents more supervised practice time with the animals, there were extremely different reactions. The majority of docents thought starting a mentor group would benefit the docents overall. Currently the docents do use a mentor program with new docents as they are working through the general docent class. Mentors were used five years ago with docents training other docents on animal handling. The mentor program was dismantled because of inconsistency in animal handling techniques and the need to raise overall husbandry and handling standards. Now with a more structured training program in place, docents have begun asking about a mentor program.

Docents gave suggestions for how to utilize a mentor program. First, many of the docents said that the mentors for each animal group would have to be selected by staff trainers. Mentors would be selected based on handling skills and the ability to work easily with others. Docents believed that the mentors would have to be part of the program voluntarily and therefore it could not be tied to their animal handling eligibility. If a docent did not want to act as a mentor, it would not influence which animals they are handling. Mentors would need to be evaluated by staff members and may need to receive extra training to be a mentor. An idea was raised that the development of a checklist for the mentor to use as a guide, outlining the specifics for observation would be beneficial.

Docents said that the advantages of using a mentor system include relieving staff members of some of their duties while still maintaining plenty of training time for docents. Teaching and critiquing animal handling skills in others would make the

mentors stronger handlers. Therefore the goal would not be to create a mentor program, but to help use mentoring to turn teaching into a learning process for both parties (Hargreaves & Fullan, 2000). Yet several docents were concerned that the elite status of the mentors would interfere with the docent family and cause a rift among the docents. One docent said that if she was going to be mentored by a docent on a particular animal, then she should have the right to mentor another docent on one of her other animals. She said, "You know it is only fair if I have someone watching me that I get to watch someone. Not necessarily the same person, but someone." She was thinking about the mentor system as any other docent activity, where every docent can participate. However, she did not address the situation where the docent being mentored still has minimal skills on all their animals and needs to stay at that level. The focus was not on the skills but on the docent.

Docent feelings might be hurt if the mentor program is formalized and they are not selected. Docents that might have excellent handling skills but limited ability to critique a peer would not be selected. Docents might consider themselves excellent handlers, and this might give them reason to feel left out if not selected as a mentor.

Communication Issues

The most commonly mentioned topics for preparing docents to handle live animals was the process of communication. Docents talked about the recent year of animal handling training but also expressed thoughts about the previous years of training.

Miscommunication was given as a problem from the early animal handling training began to the present, though docents said they have noticed dramatic improvements.

Docents specifically shared times when procedures changed and they felt as though they were left out and were not told about the changes. "At first you had to clip the bird to the glove and then get it on your glove and unfasten the clip. Then you had to first get the bird before the clip," one docent said. "It was confusing and all these changes just seem arbitrary," she continued. While the procedures may have been announced to the docents, not everyone was informed. In addition, docents often conveyed messages to the peers that were not exactly what the staff members had shared.

One attempt to communicate animal handling changes was to post notices in the animal building as well as the docent office. Docents had mixed views on the notices. Some found them "informative" and a helpful way to stay current. Yet others saw them as "bad art that no one reads." Those docents who do not read the postings confessed that they did while things were being posted every week, but if a period went by without postings, then they tended not to read them at all. Email is being used currently. Most docents agree that email reaches all docents (except for one couple who do not own a computer). However a few docents said that they often delete so many emails that they might just "pass by" an animal email.

Docents perceived some of the peers as being treated differently than the rest of the docent core. They believe that some docents have favoritism in terms of learning about animal updates first or being selected to handle certain animals. For example one docent shared, "Some docents that want a certain animal are always selected…because

staff like them." A perception of favorite docents exists. Another docent said, "Some docents can do a moderate job, but they say what the trainer wants to hear and then they are fine. They are friends with the trainers and get what they want." Another source of conflict was over the notion that docents who give monetary or other gifts to the Museum are treated differently. Somehow the standard appears to be different for them.

Docent interviews revealed thoughts on the animal collection, training staff, fellow docents, docents themselves, and how training is enacted. Docents based most of their ideas in first-hand experience, but also shared ideas from their fellow docents. Portions of interviews that were most emotional or passionate included: docent feelings about their struggles in handling the animals and interacting with the training staff as well as general communication problems with staff.

Trainer Interviews

Animal Welfare Concerns

Trainers expressed that they felt as though the docents cared about the animal collection but did not intuitively understand many welfare concerns. For example, many of the small animals (arthropods, snakes, salamanders, kangaroo rats) are transported from the animal building to the interpretation site in a cooler. While carrying the cooler, the animal inside can inadvertently be shifted around from one side to another if the cooler is knocked into a door jam. Trainers believe that docents do not recognize these steps as important to the welfare of the animal. Another area trainers mentioned was that docents want to connect with the animals and like to offer them food treats. Docents are

encouraged to take out mesquite beans with the parrot so visitors can see the bird eating

foods it would eat in the wild, as well as the chance to watch how it uses its feet to hold

the food. Yet some docents offer nuts to the parrot without checking with the trainers.

The animals are all kept on specific diets that are recorded on a daily basis. Additions or

deletions from their daily diet can impact their weight and health. If an animal begins to

gain weight, trainers may adjust the diet without knowing that docents are supplementing

the bird's diet. Trainers emphasized that docents have good intentions but often are not

always considering animal welfare as a concern.

Trainers also expressed that the docents do not appear to recognize that the staff

members are held accountable for the animal collection. Animal welfare must be one of

their highest priorities as it is a direct reflection on the quality of their work and tied to

their annual performance reviews. Further, the staff members work with the animals on a

daily basis and want to create the best quality of life they can for the animals. "We work

hard to make sure the animals have the best we can give them so they are healthy and

ready for handling," said one trainer.

Docent-Trainer Relationships

Trainers each thought than most of the docents valued their input on animal

handling. However each trainer recognized her strengths and weaknesses and believed

that docents often pressured them in their weak areas. For example, one trainer is

regarded as an excellent animal handler and interesting teacher for large groups but

abrupt or harsh in one-on-one trainings. This trainer expressed that docents have taken

advantage of some of her early training sessions and have not recognized her growth. Over the years she believes she has improved in one-on-one training sessions, but docents relate to her as though she is not a good teacher or approachable. These first impressions or first teaching interactions have a long latency, especially with negative teaching moments. Docents have labeled this trainer as harsh and difficult to work with, thus she has lost credibility and authority with them.

Trainers believe that the relationships between staff members and docents are a critical component to the training program. However, the trainer with the longest history in the program recognized that she did not invest time in docent relationships in her first two years. She believed that the animal handling skills were far more critical than the personal relationships. Yet over the years she said she has changed her ideas. The other trainers all agreed that the relationship between staff members and docents can make training a success or a failure without ever touching an animal.

Another trainer shared that she believes her young age has been both an asset and a disadvantage. She is young enough to be a grandchild of most docents she works with in training sessions. The youth has helped her as many docents have warmed up to her and have said they feel very comfortable working with her. She has instant connections with those who view her as extended family. Yet she did share a few cases where male docents were testing her knowledge and comparing her answers to those of other trainers. She believed that this testing process may have occurred due to her age.

The other trainers both felt as though they had instant credibility based on previous experience as docents. Yet one mentioned she felt like she was a little uncertain

about her training abilities. She felt as though she would be a better docent trainer if she had a deeper knowledge of animal training. Rarely did docents challenge these trainers even though their background in formal education and animal training was less than the other trainers.

Finally, one trainer also shared that she believed her other job duties at ASDM helped her gain credibility with the docents. Many of the docents also expressed this idea in their interviews. The trainer works on the bird flight demonstrations and has a deep understanding on bird training. The docents respect her work and recognize her as an expert in the area. Yet some of them shared that they were more likely to approach another trainer for questions on other animal groups, assuming that she would not know the answers.

Consistency From the Trainers' Point of View

Trainers also expressed frustration in consistency among their own group. They dedicated six weeks, prior to training the docents, on trying to agree on exactly similar approaches for teaching and evaluating. Trainers recognized that in previous years, inconsistency between trainers was a major problem. Each trainer might evaluate a little differently, and then the docents would compare notes. Ultimately one trainer shared the term "trainer shopping" to describe how docents would check the schedule to sign up for certification with the easiest trainer. Allowing docents to work with their favorite staff member does not seem to be a problem until one trainer's schedule is full and the others are empty. Or another problem the trainer shared was when docents would be upset that

the trainers switched shifts and they would have to work with the trainer they were trying to avoid.

The trainers felt that the docents should not have the ability to set staff members' schedules and that "trainer shopping" should be minimized as much as possible. The trainers believed that the more often the docents gather and talk about which staff members they want to work with, the more the focus is shifted off of the skills and on to personalities. To complete animal handling certifications, docents must be able to work with the staff member on duty. To become the best animal handlers, docents need to be able to work with any trainer.

Establishment of Policy

Trainers have expressed frustration with docents who believe that they should have the ability to make changes about animal handling as though they are the staff members who work with the animals and docents each day of the week. As paid staff members the trainers must follow procedures set out by the institution, yet the trainers feel like the docents do not always have to adhere to rules. With some individual docents, rules are flexible or not enforced, yet with staff members they are. The trainers expressed frustration with a system that often supported volunteer feelings over established policies.

Trainers all commented on a small group of docents who "feel a sense of entitlement as though they can do whatever they want with the animals." The trainers perceive the docents as power hungry and uncooperative. This small group is described

as destructive to the group because they "are not motivated by improving the Museum, but rather their own self-image." When animal handling policies were not altered for this group, a small number left the animal-handling core.

Trainers said that docents who continuously question the policies wear them down. " We explain why we have this policy, and sometimes it is difficult doing it over and over. But what is worse is when some docents keep asking about it as if asking will change the answer." Trainers believed that the docents who did not agree with policy changes or did not respect the trainer's authority continued to ask in an attempt to change things.

Docent Personalities and Communication

Trainers noticed a trend of certain groups of docents as being more difficult to work with than others. In particular there were two days of the week where docents had prestigious roles in their former careers, and trainers felt as though a volunteer position was difficult for these docents to adjust to at the Museum. Most of these docents had previously led large groups of staff members and primarily gave instruction to staff teams who were the same age as current trainers. All trainers expressed frustration with how to relate to these docents who insisted on relating to the trainers as though they were low ranking, non-valuable employees.

Trainers talked about one change they implemented this year, making notes for the docents during the one-on-one sessions. The docent would work with the animal and then discuss point that went well and areas to work on the next time. In previous years

trainers thought they were sharing the same information session after session. They did

not think they could encourage docents to take notes, so the trainers did it for the docents.

Trainers thought that this system helped some docents, especially those with memory

problems.

Trainers believe that some docents, a small percentage, would not learn the

animal handling skills. The trainers tried a variety of methods but all agreed that some

docents do not want to learn new methods. While the trainers felt like their supervisor

was encouraging them to try every method possible to work with this small group, the

trainers felt it was hopeless. The trainers believe that a few individual docents will not

learn because they have chosen not to and are resisting. In addition to those docents there

were two other docents who were pointed out as examples of docents with severe

physical limitations, who even with reasonable accommodations would eventually not be

able to handle animals. The trainers stressed that the earlier these docents were talked to,

the better the atmosphere would be for all docents. The trainers viewed these cases as a

task for their supervisor, the Animal Behaviorist, to remedy.

Challenges for Staff

Trainers have had goals of being more visible on-grounds to help docents for over

a year. Each trainer expressed frustration in not being able to get to on-grounds

observations. They have all felt stretched by other job duties, and this one was a task that

could wait until later. Yet the trainers believe that in the long run, time spent out on-

grounds will shorten training sessions through the training period because bad habits may be caught earlier. The trainers were eager to start working on-ground with docents.

Record keeping has been a valuable tool for the trainers, as they knew what each docent had practiced during a one-on-one training session. Trainers thought that the records helped them provide focused training for each docent. Though trainers were frustrated about the time they had to enter notes. "You finish working with one docent, then there are six more lined up, and there is no time to write notes until the end of the day," said one of the trainers.

Trainers believed that writing notes for docents after training sessions helped some docents remember details for the next practice session. Again trainers said that they felt rushed. "I sometimes just jotted bullets, but it might have been more helpful for docents if I could have written more, but the time," said one trainer. "Working with the docents in addition to our other work just keeps us at a frantic pace all summer," said another trainer.

Trainers had mixed reactions to the ideas of mentors. The trainers who were previously docents thought the mentors would be a strengthening addition to the animal handling training program. From their point of view, the mentors would save staff time and give all docents who wanted to practice with someone an opportunity. They did not think there would be problems socially for the docents who were selected as mentors with the docent core. Other trainers thought that utilizing a mentor system would amount to more work for staff members both in training time for mentors and then in managing

docent feelings and conflicts. They saw a mentor program as a step backwards in terms of forming good relationships with docents.

Training staff interviews revealed that they shared in common some of the same themes that the docents discussed. The staff members were frustrated with difficult communication and not feeling like they were connecting well with all docents. They also felt the pressure of balancing the needs of the animals with the needs of the docents. Furthermore, time was a large constraint on the training staff. They often felt as though they would like to provide more for the docents in terms of training, but also had to maintain the animal collection within the workday.

CHAPTER 5

CONCLUSIONS

The study identified multiple barriers to preparing docents to handle live animals

from both a docent or volunteer perspective as well as a trainer or staff member

perspective. Challenges shared by docents reflect common problems in the adult

education literature. Specifically these problems are: the idea of change (Fullan, 1993;

Fullan 1996a; Fullan 2002), communication struggles (Funston, 2004; Lorsbach, Jinks, &

Templeton, 2004), issues around authority (Ellin, 2000; Ramsey, 1993; Vecchio, 1993),

feelings (Ohlott, Chrobot-Mason, & Dalton, 2004) and attitudes (Jackson. 2002), and

different kinds of learning styles (Kolb, 1984).

Change

A difficult barrier was the notion of change. Docents at the Museum have

enjoyed the ability to make many decisions about how they will help the organization. In

some sense staff members have at times acted as guides rather than supervisors. The

information docents shared was that they did not like the idea of change relative to

animal handling protocols; they did not agree with the need for change; and finally they

were willing to change but only if the group was changing as a unit.

Fullan (1992) provides assumptions about change in any group. One assumption

is that conflict and disagreement are fundamental to successful change. The conflict

between the training staff members and docents shaped the way the animal handling

training progressed. From the trainers' perspective it was made of slow steps over

several years, but in the history of docent classes it was virtually overnight. Fullan

(2002) suggests it takes three to five years for institutional reform. The animal handling

training program has transformed in roughly four years.

Change does not happen with all group members agreeing simultaneously. Rather

over time, more and more individuals join the reform group (Fullan, 1992). Most docents

as a group were opposed to the changes in animal handling protocols and training. But

docents said as time passed gradually they began to see and take part in the benefits of

the program. These benefits included working with animals that were better behaved and

docents who had more skills to draw upon when needed.

Trainers invested time on sharing logical knowledge about why the changes

needed to happen for the organization as well as the animals. Yet no amount of logic

could convince all docents that this path was appropriate and necessary. Several docents

were entering the discussion from a point of emotion, entitlement about the animals, and

fear about change. Further, the trainers and staff members were interested in making a

large-scale shift including changing housing of animal, selection of which docents

worked with certain animals, new training and evaluation. The docents interviewed all

talked about the change as an outside group changing or taking over something of their

own.

Communication

Building on struggles with docents being resistant to change, the second largest

barrier that involves change is effective communication. Every single docent interviewed

as well as many of the written surveys included communication as a difficult challenge

for animal handling training. Change can be difficult in any organization especially with

large numbers of passionate people. Yet with relatively poor communication methods in

place, change is slowed and stopped. Trainers and docents alike have commented on

how they agreed with certain aspects of change, but each thought the idea had come from

their party alone. The lack of communication did not allow the groups to recognize that

they were both thinking about the same idea (Funston, 2004)

Further, docents had requested that staff members spend more time

communicating with them about changes. Many of them felt a need to know why the

training was proceeding in a particular manner. If they knew why and had an opportunity

to ask trainers questions, then they would have felt more at ease with the process. From

the trainers' perspective, they believed that docents did have opportunity to ask any

questions in a variety of forums. Yet the docents did not perceive the open door policy,

and there again is another example of a communication failure.

Docents shared mixed beliefs about their inclusion in the process of reform.

Some docents felt as though they were never consulted or invited into the process that

was about them. Trainers' believed that docents had ample time and notice to share ideas

and opinions. Other docents felt that they offered ideas and the training staff members

incorporated them into the training process. Communication may also have been a

problem in this case where some docents see they have an opportunity to be involved in reform while others felt as though they were left out.

As some of the changes in protocols or training were not as effective as envisioned, changes were made mid-training. Docent and trainers expressed great frustration with not feeling informed. Trainers would listen to the docents and attempt to modify training to better suit docent needs. Notices about changes would be posted in a variety of formats. Some docents understood the system of communication used by trainers, but not all did. As the docents discussed whether changes were made or not, more confusion grew in the docent lounge. By the time docents and trainers discussed the changes and why they were made, docents felt left out. Trainers would explain training changes over and over to multiple groups of docents on each day of the week. By the time the entire group of docents had been informed, another change was on the horizon. The lag time of working with a group across the week was frustrating for trainers and docents. When changes were made in certification process, it was only at the beginning of each training year. However, docents were frustrated by not feeling informed about those change from one year to the next. Docents might have preferred an assessment technique that allowed more discussion, so they could demonstrate their abilities in a broad sense (Lorsback, Jinks, & Templetom, 2004).

Trainers would make exceptions for some docents with physical limitations. These exceptions were not expressed or shared with the entire group publicly. Docents would discuss among themselves the exceptions and why they may have been made. The longer docents discussed these exceptions, the more passionate the stories grew about

docents or trainers. Rumors often flared out of confusion over why one docent could have an exception made for them, but not be made for another.

In addition to rumors about animal handling training, docents also discussed concerns with other staff members outside the animal department. Docents shared concerns with various staff members who had no supervisory power over the collection and hoped to sway staff member support to back the docents' concerns. At times docents also discussed concerns with the supervisor of the animal staff. The concerns often led to discussions with all parties involved, but tensions grew by the time the group was brought together. Many of the struggles were concerns that could have been solved by communicating with the affected parties rather than a larger group.

Issues Around Authority

Docents shared that some of their peers had problems with accepting the trainers as experts in animal handling, training and demonstration. Most docents were hesitant to express this idea for themselves in interviews, but a few did. The lack of authority was twofold: first the upper management had not previously supported training staff members when making changes, and secondly the docents had become accustomed to having great input in organizational changes. Training staff members had grown hesitant about openly discussing all concerns due to the lack of support.

As docents experienced small successes with animals and a growing working relationship with staff members, they became more willing to accept trainers as leaders (Ramsey, 1993). These few docents were vocal about their support of the animal

handling changes and garnered more support from the core. This small group of docents and trainers continued working together to demonstrate to the docents and the organization that the animal handling changes were improving life for the animals and the docents.

Support from a sector of the docent core and from the management helped the trainers gain authority. In addition, two of the five trainers had additional animal training and demonstration experience that helped them gain expert status (Vecchio, 1993). The other trainers without that specific experience had to work harder to demonstrate their skills to docents. Docents related to young supervisors differently; some looked at them as non-threatening kids helping out while others viewed them as inexperienced and felt they were attempting to make too many changes. Over time, with gradual improvements in the program, these age and authority issues subsided.

<div align="center">Feelings and Attitudes</div>

Docents expressed that most upsetting to them about training and certification was the feeling afterwards: nervous, panic-stricken, fearful, embarrassed, or even devastated. Trainers shared feelings of frustration with feeling like they were working hard without any appreciation for what they were doing. Both groups said that the most recent year of training has been very different from earlier years. Overall, there is less suspicion and nervousness on both sides. Unfortunately docents shared that there are a few docents who were so frustrated early on in training that they are not likely to try animal handling again. The number of docents who left because they believed training

was "too strict" or they were treated "with rudeness" is under 5%. Unfortunately, these docents are not part of the current animal handling core and did not provide input for this study.

Yet docents being interviewed seemed to remember well the negative emotions they felt about early training and change. More significant than even the kinds of feelings is that after several years some docents are still deeply hurt. "Devastated" was used to describe a certification or evaluation period for one docent. She said she had not felt that way before in her life. So while to trainers, dealing with the animals every day is only one portion of their job, it is a huge part of the docents' day. Furthermore, the interactions between docents and training staff members have more impact than the staff members were aware. Docents will quote staff members from several years ago, and it may not be completely accurate verbatim, but the docents expend energy and emotion remembering it.

In addition to deep emotion about the animals, docents had a variety of attitudes about the animal handling training. Some docents approached the training as an opportunity to learn and improve. Other docents were more critical of the training but were still interested in working with the animals and therefore willing to complete training and certification. Yet others consistently challenged authority, complained to peers and trainers about the process, or even complained about training staff members. Attitudes about the training influenced the docent core because the docent "family" communicated to one another about feelings and attitudes. The ability for a particular

attitude to spread through the core was a challenge. Some docents said, they did not want to defend the training in front of their peers for fear of being considered an outsider.

Various Learning Styles

Docents said that animal handling training should take into consideration multiple learning styles. Most docents went on to talk about whether individuals learn best by reading a document, watching a demonstration, or practicing a technique. One docent said, "tell me, show me, watch me" to describe how she learns best. Each docent talked about how they learned best, but most docents then said that each individual learns differently and trainers need to cater to everyone.

Trainers could benefit from research about learning styles to better accommodate docents in animal handling training. Most docents would be in the accommodator or diverger learning style category (Kolb, 1984). Based on information learned in the written survey, a small number of docents would fall under the other two categories (assimilator and converger). Docents shared that they prefer to "see the trainer pick up the animal and handle it and then I am comfortable to try it." Another docent said, "after I see someone else handle the animal, I can make sense of what is being said, but I then really need to have the chance to just do it." Ultimately docents believed they learn best by watching and then doing the task at hand.

Trainers agreed that most docents benefited most from watching demonstrations and then being led through animal handling with trainer feedback. For example, a trainer can approach and pick up a barn owl while explaining the salient points about safe

handling. Next the docent needs the opportunity to repeat the procedure with a trainer on hand to guide the docent. If possible, the docent can explain what they are doing and why, so the trainer really knows the docent understands what they are doing, rather than the docents just stumbling onto the correct protocol. While some docents may prefer to read the animal handling protocols, listen to lecture, and reflect on how to best work with the animals, the handling is an active process. To become a competent animal handler, the docent at some point must work hands-on with the animal. The trainers differ over how quickly after watching demonstrations the docents should begin handling the animal. But in any case, the training staff members would benefit from learning more about learning styles and preferences.

Adult Learning Theory and Animal Handling Training

This animal handling training program could minimize or manage barriers to teaching docents by utilizing adult learning and experiential learning theories. Andragogy describes how adults learn best. One key element to andragogy is climate setting for adult learners. Adults and children need to feel psychologically safe to be ready to learn. The actual learning environment needs to be as comfortable as possible to learn. Docents expressed feeling rushed, like an outsider in the animal building, and being uncomfortable with the animal equipment and its location (e.g. not knowing where the gloves for falcons were stored or how to find the correct sized glove). As trainers began to recognize some of these strains, they took greater care to label as much as possible for docents to locate items they might need. Tours were given of the animal

building so docents could locate all necessary items and feel like the building was their workspace as well.

Those docents who were interested in learning in active classes, often expressed fear about being the first one to demonstrate or participate in an activity. Though many docents wanted to be active participants, they quickly reverted to waiting for the trainer to lead the docents or class. "I appreciated the activities, but must admit that I was not excited about doing them at first. You know, it is something you sit back and do the class to get it done. But it really was a lot of fun," said one docent. Once classes were underway and docents began interacting with trainers and other docents, this challenge of keeping docents engaged and responsible for their learning seemed to lessen.

In general, some docents were extremely motivated and responsible for their own learning. Most docents followed trainer recommendations about completing a particular number of practice sessions. The more engaged they were in training, the more often they came in to practice with an animal. Yet other docents had an expectation that if staff members recommended training sessions, then it was staff member's responsibility to enforce the practice sessions. Some docents did not follow recommendations and did not easily complete the certification process. These docents had to be led back to the beginning by staff members. While this group was small, they persist and do not follow the norm for what adult learning theory suggests about self-directed adult learners. The conflict may be that these docents want to handle the animals but are not all that interested in learning more. So in this case, the learning theory does not offer much to those adults who are not motivated.

Implications

Training staff members have different options depending on whether they are starting a new animal handling training program with new volunteers or changing an existing program. For new programs, staff members have the ability to minimize or avoid challenges because an engrained culture does not exist. Beginning programs do not face the same kind of cultural change with volunteers. The standards or expectations can be set forth from the start without a history of different or lower standards.

For organizations changing the current system, the actual changes need to be made as well as changes in the culture (Fullan, 1996b). Open communication is critical to implementing change and gaining support from a volunteer core. If volunteers can be included on the reform effort, the more likely they are to support the effort. Effective communication can circumvent major problems and rumors from beginning and slowing change. Staff members at all management levels must support the training program so that volunteers feel supported in their efforts.

Open communication is critical for any team to be successful (Salas, Sims, Burke, 2005). Volunteers become part of an organization because they support the mission, have time to give, want to learn new skills, or all of the above (Warburton & Terry, 2000). One way to keep volunteers interested in the program and help them work to their highest potential is to include them as much as possible in planning sessions. However, for animal handling protocols, all accredited organizations are held to professional standards. Volunteers must understand that there will be some policies where they are not free to make decisions, as well as those policies must be followed without exception.

But staff members must create a climate where volunteers feel free to have discussions about questions they may have. While open communication can take a lot of time, it is well worth the investment in order to have a volunteer core in support of the efforts.

Open communication is tied directly to authority for staff members' decisions and organizational policies. While volunteers need to be able to make physical, emotional, and cognitive investments in the organization, staff members do the same. Volunteers and staff members must work together, but in times of questions or emergency, staff members need to be the responsible party. The staff members are at the institution to complete a job. The staff members' success in part depends on the ability to motivate and manage volunteers to meet a common goal, in this case demonstrating animals for visitors.

When staff members are instructing or managing volunteers it is critical they remember that the volunteers are part of the team. Just as staff members can be hurt, less motivated, or frustrated in their jobs, so can volunteers. One of the responsibilities of the staff is to care for the volunteers as a working part of the system. If volunteer feelings are hurt or the group is not motivated, the staff member must attempt to solve the problem. Not all volunteer issues can be fixed. But if staff members use open communication to investigate the volunteer's thoughts, feelings, and attitudes, likely a solution can be found.

As important as learning to train the animals used in programming is for staff members to learn about how to best prepare volunteers to work with animals. Andragogy has key elements to offer for trainers working with volunteers including: climate setting,

recognizing volunteers' past experiences, providing some self-directed learning, providing the "why" behind protocols, and recognizing task-orientation. Knowledge of learning styles would help trainers recognize the different kinds of teaching approaches are needed. Focusing on several learning styles in particular may be beneficial for older adults like Kolb's accommodator and diverger styles.

Limitations

The barriers shared by both staff members and docents exist in some form at other institutions (Kassner, C., Wightnman, S., Antal, C., Noll, S., Flynn, T., DiGennaro, J., Kokoszka, T., and Kirkendall, L., pers. com.). Despite the challenges of working with a volunteer core, many organizations do not have other options due to financial limitations or community perceptions. Without volunteer hours, some organizations would not be able to demonstrate live animals because keepers, trainers, and paid educators have many other tasks to complete in their day. Organizations who work closely with volunteers from the community are able to garner support in other ways in addition to volunteer hours.

Organizations that have utilized volunteers for a shorter period of time compared to the Museum do not have the pronounced barriers of the Museum. Also the fewer volunteers in the program, the less obvious the barriers seem to be. This study is specific to the ASDM with a somewhat unique docent core due to their longevity at the Museum and their time investment in intensive training, as well as the highly developed animal

handling training standards. While the barriers may be in common with other organizations, the study is not necessarily generalizable to all zoos and museums.

Further, the researcher had the advantage of being familiar with and a part of the system. However, knowing the docents or subjects may have been a limitation. While most docents appeared free to tell the researcher about problems with the training program, training staff members, or the researcher, some may have withheld valuable information. Some docents shared words like the training program "seemed obnoxious", or the staff members are "rude", or the researcher was a "dictator" or "primadona"; not all docents were this open. Perhaps some docents did not want to hurt the researcher's feelings or damage their relationship with the researcher. One technique used with some docents was to conduct a slightly longer interview, hoping that after time they would feel more relaxed. Most docents began speaking very freely within the first 10 minutes. For example, those who do not use colorful language generally felt free to do so in the interview. Ultimately the possibility exists that the docents did not share information honestly, a problem that may be unavoidable.

Another limitation with the researcher being part of the system was analyzing the data fairly. The researcher may have been more sensitive to some themes like communication, not only because that was part of the data but also part of her daily life working with the docents. Another theme that was present in daily life was the notion of change. Other themes and barriers were not dealt with on a daily basis.

Future Research

This study provides trainers with some basic barriers to working with adult volunteers and live animals in a zoo setting. Further research could help provide ideas for how to work specifically with challenging animals utilized by volunteers including large birds or prey and parrots. Volunteers, with varying degrees of success, utilize both of these animal groups at zoos and it would be helpful to provide specific guidelines for these groups. Particularly how to teach precise animal handling methods that are often based on detailed body language, to a group of adult volunteers that may only spend one day a week with the animal. Another area of to investigate is volunteer motivation around the topic of animal handling and its impacts on how to teach volunteers.

APPENDIX A

Arizona-Sonora Desert Museum
Program Animal Policy

I. Philosophy

The mission of the Arizona-Sonora Desert Museum is to foster a love and appreciation of the Sonoran Desert. The use of program animals on and off site provides an engaging and memorable experience for Museum visitors, which promotes learning about an individual animal, the species, and the ecosystem. The animals' safety and welfare, and the safety of human handlers and visitors are considered at all times to create the most successful and meaningful experience for all involved. Museum demonstrations focus on natural behaviors of the animal and do not include behaviors or variations on them that would misrepresent the animal. The information exchanged during live animal demonstrations always includes natural history information, behavioral information when appropriate, ideas about stewardship of the desert ecosystem as well as other conservation messages. Program animals are selected based on their suitability for demonstration as well as the ability to embed a strong conservation message into the demonstration with that given species.

Program animals are included in the Museum's collection because of the connection and life they can bring to the visitors' experience. The up-close experience with the animals encourages visitors to observe and listen to an educator longer than if the animal were on exhibit (Povey, 2002; Povey & Rios, 2002). Personal experiences with trained staff and program animals allow visitors to ask questions and therefore target the interaction for each group of visitors (Churchman, 1985; Johnston, 1998). Creating situations where visitors will listen to interpretations longer and engage in conversations with educators promotes better delivery of the Museum's message, fostering an appreciation for the Sonoran Desert.

II. Program Animal Use and Settings

Program animals are used both on and off grounds by staff and volunteers. The focus when utilizing live animals is always on the animal, its natural behavior and conservation information. The animal is an ambassador for its species and provides a means for visitors to connect with the species on an individual level. Not all animal types are available for both on and off grounds use, and few animal handlers are allowed to handle all program animals. The conditioning of the animal, its history, the type of program, and setting are just a few considerations when deciding whether the individual animal is

appropriate for a program. Animal handlers are trained and evaluated on individual animals for use in programs.

On site programming includes the following:
- On grounds demonstrations (large audience capability) by staff for all visitors
- On grounds interpretation (small audience capability) by staff for all visitors
- On grounds interpretation (small audience capability) by volunteer docents for all visitors
- Media events
- Formal presentations for school classes
- Presentations for summer camps
- Presentations for overnighters
- Behind the scenes tours

Off site programming includes the following:
- School classes (auditorium and single classes)
- Library Programs
- Fund-raising events
- Media events
- Special community events
- Lectures and workshops

Animal use for the on and off site programs depends on information listed in the animal's Standard Handling Procedure (SHP) in the Interpretive Animal Collection (IAC) Animal Handling Manual or the Raptor Free Flight (RFF) Animal Handling Manual. Details on animal health issues, assessment of stress in program situations, limitations and restrictions are listed in the SHPs.

III. Compliance with Regulations

Regulations

All program animals' housing is in compliance with the USDA's Animal Welfare Act and raptor housing exceeds the State of Arizona Falconry Regulations for weathering areas. AZA Accreditation Standards guide decisions about program animals to ensure that the Museum is maintaining the highest of standards.

Code of Professional Ethics

All staff working with program animals maintains high professional standards. Staff and volunteers have a responsibility to the animals in their care and use, the visitors they serve, and co-workers. Staff and volunteers must be fair and professional when working

with one another and program animals. Staff and volunteers must consistently be dedicated to improving the Museum and the use of program animals.

IV. Collection Planning

The Museum's program animals are included in the overall Collection Plan. The Collection Plan addresses the following topics specifically for program animals: listing of approved program animals and general guidelines for how each species will be presented. The Collection Plan addresses acquisition and disposition policies for the entire Collection including program animals. The listing of approved program animals includes a justification for each species based on:

- Temperament and suitability for program use
- Husbandry requirements
- Husbandry expertise
- Veterinary issues and concerns
- Ease and means of acquisition/disposition
- Educational value and intended conservation messages
- Conservation Status
- Compliance with TAG and SSP guidelines and policies

V. Conservation Education Message

In recent decades, society has become more disconnected with nature as cities expand, which supports the need for zoos and aquariums (Miller, et al. 2004). The Desert Museum provides local, national and international visitors the opportunity to experience the Sonoran Desert and its wild inhabitants. Program animal use is an effective method for connecting with visitors and sharing conservation messages.

Education programs can provide facts and still have little impact on conservation (Kellert, et al. 1996). To change negative values and beliefs about wildlife and conservation, educators must have time to interact with visitors. Conservation ideas are often misunderstood as overly simplistic problems that visitors cannot impact. Introducing visitors to live animals allows them to learn more about conservation issues since there is an opportunity for a meaningful dialogue. The live animal is engaging and promotes curiosity and reflection in visitors.

Program animals provide educators with more time to talk with visitors, but also the opportunity to have a personal connection with an animal that may or may not be familiar to the visitor. Most people have a natural affiliation to live animals, and the Desert Museum can serve visitors with a means of exploring their own interest in live animals. Program animals can help visitors who may feel aversion or indifference about animals to explore these feelings and beliefs. Recognizing these beliefs and maybe altering them in

minor ways can have significant impact on an individual's conservation related activities. For those visitors that already feel deep connections with nature, live animal interpretations may further encourage them to learn about ecosystem level issues and conservation.

Specific conservation messages that the Museum addresses in programs and interpretations with live animals include the following:

1. All life on Earth exists within an ecosystem.

    a. Ecosystems are made of interdependent relationships between groups of living things (biodiversity) and their physical environment.
    b. An impact on any element of an ecosystem has ramifications throughout the ecosystem.

2. Human beings are an integral part of all ecosystems.

    a. Human activities within ecosystems affect these systems

3. Healthy ecosystems provide many essential services and benefits that sustain and improve human lives.

4. The human experience requires a connection to nature. These experiences in wild   places in our community enrich our lives and inspire our choices for the future.

5. Human beings are responsible for dramatic changes to ecosystems at a rate unprecedented in Earth's history.

    a. The growth of the human population coupled with the increased consumption of resources by individuals will increasingly impact the planet's finite resources.
    b. The primary human threats to the environment are global warming, habitat destruction, invasive species, and overuse of individual species.

6. We have the responsibility to care for and live in harmony with the Sonoran Desert, so that it will continue to support us.

    a. Due to the unprecedented changes the human species is causing on the planet, we must often intervene to save wildlife.
    b. Many decisions involved with caring for the Earth are extremely complex, and must take into account both human and animal needs.

7. Through informed actions, we can positively impact the Sonoran Desert. These actions include:

    a. Making appropriate lifestyle decisions.
    b. Actively participating in public decisions.
    c. Sharing our knowledge and feelings about wildlife and wild places.

d. Supporting conservation organizations.
e. Being "informed" means considering multiple points of view.

Ideally program animals are starting points for more in depth conversations and thoughts about the ecosystem in which they live. The individual animal creates curiosity and desire to learn about it. Skilled interpreters and presenters can carry the visitors from ideas about one individual to ecosystem level concepts. In the very least, visitors should

leave excited to have seen a live animal up-close and may feel some connection with that experience. In the best case the animal has sparked a burning interest in wildlife conservation and the desire to learn more about issues specific to the Sonoran Desert.

VI. Human Health and Safety

Minimize Disease Transfer

Program animal use can create valuable educational experiences for visitors, but health and safety for both the animal handler and visitors must be a top priority. For animal handlers the most effective tool available to prevent disease transfer is hand washing. The SHP for each animal begins and ends with hand washing for staff and volunteers. Visitors on grounds are not allowed to touch Museum program animals with the exception of one animal group. Visitors may touch non-venomous snakes provided the snake and handler are comfortable with the setting. Visitors are provided with a hand sanitizer to use after touching the snake. The educator emphasizes that the snake may be "touched gently in the direction of the scales away from the animal's head". The Snake SHP details the appropriate touching method. Most other program animals have artifacts that can be used in conjunction with the animal, so visitors have some tactile experience without actually touching the live animal.

In school program, students may touch snakes, chuckwalla, and ringtails. The education staff has guidelines on how to present animals for touching and details about what to tell students prior to letting them touch the animal. Students are instructed to wash hands after touching any of the animals, and only four students may touch each animal to reduce possible stress on the animal. The snakes, tortoises, turtles, and lizards are presented in a similar fashion to on grounds touching protocols (discussed above). The ringtail is harnessed/leashed and held in such a manner as to keep head away from students and they may only touch the tail gently. The ringtails are rabies vaccinated annually. The educator always has the option of not allowing students to touch the animal if the setting is not appropriate or the animal is acting uneasy.

Safety Issues for Animal Handlers

The SHP for each animal group details other safety issues for handlers. Jewelry is limited when handling certain species due to the potential of an animal getting caught on it or tearing it from the handler's body. Binoculars and water bottles with neck straps are discouraged as these items may impede an animal handler's ability to work with the animal. In addition to details in the SHP, each handler meets with an animal trainer as part of the certification process to handle animals. These meeting times provide animal handlers the opportunity to ask about appropriate attire and behavior.

VII. Animal and Human Welfare

Animal welfare is the highest priority for the Museum. Decisions about the use of program animals must always take into account animal welfare and human safety. Animal welfare must include considerations like housing, husbandry and health concerns, as well as handling concerns.

Housing, Husbandry and Health Concerns

The general housing, husbandry, enrichment, and animal health concerns for each program animal must meet or exceed the general standards. These concerns must be met for each animal and must be consistent with the other Collections at the Museum. Collections Staff, Animal Behaviorist, and Veterinary Staff will work in cooperation to ensure the enclosures and daily routines are appropriate for each animal.

Animal Handlers and Animal Welfare

All animal handlers, including staff and volunteers, are trained and certified on animal handling, recognizing and reacting appropriately to animal stress signs and illnesses. Program animals are not incorporated into handling rotation until they have been evaluated by the Animal Behaviorist to be certain they are well conditioned for work on or off site. Handlers are not permitted to take animals out for program use until the animal training staff has evaluated the handler and assessed that the handler is confident about making animal welfare decisions. Handlers must be confident on instructing visitors on how to appropriately touch program animals when allowed. Handlers must also be confident to instruct visitors not to touch the animal if that is the policy.

Evaluations for Animal Handlers

Evaluations of animal handlers are required on an annual basis. Throughout the year, training staff may choose to re-evaluate animal handlers if needed. Additional training in animals handling may be required throughout the year. Program animal policies and

handling procedures may change more often than the annual evaluation period for handlers based on animal health and welfare. Animal handlers and training staff must be flexible and work together to ensure the safety of animals, visitors, and handlers.

Animal Health Care

Animal health care among the program animals is consistent with the animal care for all Museum animals. The program animals are subject to the same veterinary care and animal care standards as exhibit animals. Animals have check ups, vaccinations, and veterinary visits on a standard schedule similar to exhibit animals.

VIII. Taxon Specific Protocols

Taxon specific protocols are included in the IAC Animal Handling Manual and RFF Animal Handling Manual with each animal's SHP. Additional considerations for off site use are given in the Standard Operating Procedures (SOP) for transporting animals as well as emergency procedures.

IX. Logistics: Managing the Program

Location of IAC/RFF Housing

The IAC is housed next to the Education Building and the RFF Collection is housed near the flight demonstration site on the Desert Loop Trail. The IAC is housed away from the Museum's other animal collections to minimize contact with the other Collections. These animals are used both on and off site. The RFF birds are housed away from the Museum's raptors and typically this collection remains on site.

Quarantine for IAC/RFF

Quarantine may occur within the Museum's Collections (e.g. reptiles in Herpetology, etc.). However, at the attending veterinarian's discretion, the animals may be quarantined in the Training Room of the IAC when necessary for conditioning purposes. If this option is selected, volunteers and general staff are not allowed in or around the Training Room. In some cases, animals require overnight care and may be taken home with approved staff (IAC, RFF, or Education Staff). Quarantined animals going off site are restricted to areas where their quarantine can be maintained; in other words, pets and wildlife cannot come in contact with Museum animals. If approved staff members have pets at home, the pets must be up-to-date on all vaccinations.

These special quarantine cases may include small mammals and some birds. Bleach footbath is placed at entrance of the Training Room (door with access to cleaning room). All supplies are cleaned separately from other IAC items. Trash is bagged in the Training Room and taken directly to the dumpster. Laundry is bagged and taken to cleaners separate from general laundry.

Requests for Animals

Education Department or animal trainers may request an animal be added to the program animal use. The request is ultimately approved or disapproved by the Executive Director of Programs. All stakeholders must be involved in the decision-making process including but not limited to education staff, volunteer animal handlers, and animal training staff. Request must include plans for use, housing, husbandry and conditioning.

Documentation of Animal Usage and Behavior

Documentation for animal use and behavior is maintained in the IAC's Day Perch Room and in the RFF Mew. The usage records contain the date and time of use as well as the animal handler and in some cases the location. The behavior of the animal is recorded in the Daily Report Book and in some cases additionally in the animal's individual training book. Health concerns are also documented in the Daily Report Book that is condensed into Weekly Reports. Weekly Reports contain information also recorded with Collections.

X. Staff Training

Training for all animal handlers is conducted on an annual basis. Each animal handler is required to complete a written and practical evaluation. The preparation for the evaluation includes classes, training sessions with animal trainers and optional individual training. The details of training for staff and volunteers are included in the IAC Animal Handling Manual and the RFF Animal Handling Manual in each animal's individual SHP. Animal handling is a mechanical skill that requires dedication to practice and follow exact instructions based on the animal's conditioning. Staff and volunteers have the opportunity to train and practice with animals, but are not guaranteed unsupervised use with the animal until completing the formal evaluation.

XI. Review of Institutional Policies

The Program Animal Policy will be reviewed annually and revised by the first of March. Reviewers may include but not be limited to the Education Department, Animal Behaviorist, Interpretive Animal Collection Staff, Raptor Free Flight Staff, Curators of

Collections, Veterinary Staff, Conservation and Science Department, and the Executive Directors.

XII. TAG and SSP Recommendations

Recommendations from TAG will be considered and practiced for all program animals when feasible. Currently neither IAC nor RFF include any SSP animals.

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APPENDIX B

Interpretive Animal Collection
Arizona-Sonora Desert Museum

STANDARD OPERATING PROTOCOLS. **IAC General Information**

DESCRIPTION OF BUILDING

- Map of building and location for commonly needed items; see attached document
- Building and holding pens are locked with a service key, which hangs on side of green desk in day perch room
- ASDM emergency preparedness plan is in red binder on day perch room windowsill; quick guide in holder by door

CLEANLINESS
- All must step through foot bath; wipe shoes on green mat to prevent slipping in day perch room
- Foot bath status may change as disease threats change
- Handlers must wash hands with Septisol prior to and after working with animal
- Septisol is located in docent and IAC kitchens and at IAC cleaning sink

TEMPERATURE GUIDELINES

- All animals have temperature guidelines; temperatures can change drastically; **ALWAYS** check temperature each time before signing out animal
- Temperature guidelines account for changes while at site, take temperature at face value
- Drop all digits after decimal (for example 85.7° is 85°)
- See temperature guidelines for details

COMPUTER SIGN-OUT
- Computer tracks animals use and maintains animal rotation
- Cheat sheet for computer sign-out and sign-in is located on clipboard next to monitor
- Computer program takes into consideration guidelines for animal use
- Talk to IAC staff about computer problems; do not contact Laurence

ICE PACK USAGE
- Ice packs are used to maintain a comfortable temperature in cooler
- Ice packs used 5° below upper temperature limit
- Ice packs stored in freezer door in IAC kitchen; rotate through ice packs by removing ice pack from left side and returning ice pack to right side
- Snake coolers have a removable ice pack container; the plexi-glass piece needs to be cleaned after each use
- Soft-sided coolers have chloroplast boxes; boxes are not removed from coolers and are cleaned only if soiled by animal

TRANSPORT CONTAINERS
Several types of transport containers are chosen for easy use, animal visibility, safety and security of animal in container. Please present a clean, professional looking container to visitors; see IAC staff with any container questions.

Plastic arthropod and salamander containers
- Container can easily scratch
- Do not set anything directly on top of container; always use black foam between containers and interpretation materials
- Place lid right side up when off container to prevent scratching
- Use handles when picking up container; or use both hands on side of container
- Do not pick up uncovered container with thumb over top edge (containers crack easily)
- Lid insets into container; watch for animal when closing lid

<u>All transport containers</u>
- When cleaning plastic containers   ALWAYS use a cloth towel (stored in metal cabinet); paper towels scratch plastic

<u>SOFT-SIDED COOLER</u>
Soft-sided coolers used to transport several animals, each cooler is labeled for specific animals and contain different supplies for that animal. Look at specific SHPs for exact cooler contents.
- Black foam piece – place on top of container if packing interpretation material
- Thick foam piece – place between small scorpion containers
  - Chloroplast box –holds ice pack; do not remove from cooler, ice pack fits into box through opening
  - Wipe down interior or exterior of cooler as necessary with damp towel
  - Coolers must always be stored closed at site and building, to prevent wild animals entering cooler and to maintain temperature when using ice pack

<u>TRANSPORTING ANIMALS</u>
- Carry cooler LEVEL and STEADY
- Soft-sided coolers may be carried by handles if using one hand or from bottom if using both hands
- When walking through doorways keep body between door and cooler
- Always carry cooler by handles when walking through doorways

<u>INTERPRETATION SITES</u>
- Interpretation sites are based on amount of sun, shade, temperature control, and visitor flow
- Not all interpretation sites are appropriate year round; captains and handlers must determine best site for conditions
- If handlers have interpretation site comments or concerns please email IAC staff or leave note in IAC mailbox
- Tables at sites should not be moved; tables are located based on coolers, shade/sun, and visitors; raptor handlers cannot move tables with bird on glove

- Each SHP has a <u>Behaviors at Interpretation Site</u> section with common behaviors and sample interpretations; behaviors and interpretations are not all inclusive
- Interpretation site numbers are based on keeping some sites active throughout day, having extreme weather sites available, ensuring visitors see a live animal interpretation while at ASDM

<u>VISITOR TOUCHING GUIDELINES</u>
- Only snakes are touched by visitors – see snake SHP for guidelines
- NO VISITOR TOUCHING on any other animals

<u>BITES, INJURIES AND INCIDENT REPORTS</u>
- All animals can cause injuries; for serious injury contact First Aid
- All bites and injuries are recorded in DRB; Incident Report must be completed
- Located on desk with DRB

Give completed Incident Report to IAC/RFF staff or leave on day perch room desk

DAILY REPORT BOOK (DRB)

- Any stress signs, handling problems, unusual behaviors, observations, or injuries must be recorded in DRB
- DRB is located on desk in day perch room, records animal information and questions, and is transferred to animal's permanent records
- When recording information be specific and factual

<u>STRESS SIGNS</u>
- Stress signs can often be confusing and difficult to recognize; it is critical to work with animals often to learn their normal behaviors and be able to recognize stress signs
- Many animals have stress signs that are extremes, hyperactivity or extreme lethargy, in these cases handlers are looking for a change in behavior
- It is critical for animal's well being to stop interpretations when stress signs are present and return animal to IAC building

- Always note in DRB when an animal is returned to IAC building early
- Always return animal to IAC building if unsure about a stress sign or it's severity; discuss situation with IAC/RFF staff

NOTIFICATION METHODS

- Email – updates in animal status and handling techniques will be emailed to appropriate handlers; if a handler does not have email it is their responsibility to check IAC boards
- IAC boards – yellow bulletin boards located in the docent office and day perch room
- Folder – all animal handlers should check folders first thing in morning
- Handling Hints – notices distributed throughout year to facilitate handling protocols
- IAC staff

Sue – stygielski@desertmuseum.org, 883.1380 x 276
Stacy – sspurgeon@desertmuseum.org, 883.1380 x 273
Kerry – kbarber@desertmuseum.org, 883.1380 x 273
Cyndy – cwicker@desertmuseum.org, 883.1380 x 273
Marta – mhernandez@desertmuseum.org, 883.1380 x 276

INTERPRETATION SITES AND TEMPERATURE GUIDELINES

Animal	Arthropod	Snake	M Boa	Tortoise	Salamander
Temp range	65° - 90°	65° - 90°	75° - 90°	65° - 90°	65° - 90°
Ice pack at	85°	85°	85°	85°	85°
Interp sites	Orientation Earth Sc Cave Cat can-in Cat can-out Riparian Ironwood Gallery Des Gar Yucca Aquatic	Orientation Earth Sc Cat can-in Cat can-out Riparian Ironwood Gallery Des Gar Yucca Aquatic	Boa perch Cat can-in Des Gar Yucca	Orientation Earth Sc Cave Cat can-in Cat can-out Riparian Ironwood Gallery Des Gar Yucca Aquatic	Orientation Earth Sc Cave Cat can-in Cat can-out Riparian Ironwood Gallery Des Gar Yucca Aquatic

Animal	K-rat/P-rat	LC	Falcon/Hawks	Owl
Temp range	70° - 85°	95° and below	95° and below	85° and below
Ice pack at	80°	No ice packs used	105° to cooled site	95° to cooled site
Interp sites	Orientation Earth Sc Cave Cat can-in Cat can-out Riparian Ironwood Gallery Des Gar Yucca Aquatic	Boa perch Cat can-in Des Gar Yucca	Wildflower Orientation Earth Sc Ironwood Gallery Des Gar Yucca	Wildflower Orientation Earth Sc Ironwood Gallery Des Gar Yucca

<u>Interpretive Animal Collection</u>
Arizona-Sonora Desert Museum

<u>STANDARD HANDLING PROTOCOLS</u>. **ON GROUNDS**

Lilac-crowned Amazon

Amazona finschi

Refer to **IAC General Information** prior to working with bird and as a reference.

GUIDELINES FOR ANIMAL USE
- 3x daily
- At least 45 minutes between uses

<u>BIRD ENCLOSURE</u>
- LC is housed in IAC holding pens, bird is currently in pen #1
- Take holding pen key to unlock pens
- Enclosure contains perches, house, food and water bowls
- Rest crate on oil pan holder used to set crate on; may be moved
- Pick up bird from any place in pen
- In winter months a heat lamp is outside of pen; use caution when opening door

<u>CRATE AND STICK</u>
- Bird is transported in small crate stored in middle room
- Carpet - on bottom of crate and must be clean, free of loose strings and fit bottom of crate snuggly (inappropriate sized piece of carpet can injure bird)
- Crate cover –always take with crate, if cover is missing or soiled, extra covers in metal cabinet
- Stick - to move bird from perch to crate and is located on top of or next to crate

PICKING UP BIRD

- Both holding pen doors must be closed
- Enter pen with crate and stick; ALWAYS lock pen door while inside
- Rest crate on oil pan holder with door open
- Holding end of stick, move towards lower belly of bird; bird must step up and forward
- Stick should remain steady (not bobbing up and down) when bird steps onto it; if stick bobs move hand closer to middle of stick
- Angle stick with bird end higher
- If bird lunges without stepping on stick, stay still, ignore for 15 seconds and then try again
- If bird pushes or grabs at stick with beak, gently but firmly rotate stick under beak toward belly
- If bird does not immediately step onto stick, gently but firmly push stick into belly with a back and up motion
- If bird does not get on stick after third try, do not take bird out; record in DRB; check with IAC staff to confirm proper techniques
- With bird on stick, place bird and stick in crate; be aware of tail and head
- If bird spreads its wings while being put into crate, STOP and let bird return to a relaxed position
- In crate, bird will usually step off stick; remove stick from crate
- If bird does not step off stick, rotate stick slightly backward encouraging animal to step back; remove stick from crate
- Secure door while keeping fingers on door latch; bird cannot reach through door with beak
- Do not use stick to push door closed or slam door to stop bird from coming out of crate
- Cover crate
- Take stick to site
- Return key

TRANSPORTING BIRD

- Front flap of cover can be lifted to allow air into crate
- Carry crate LEVEL and STEADY

AT INTERPRETATION SITE

TREATS

- Mesquite beans or palo verde beans (located in freezer) can be given at site; carry to site in pouch attached to crate handle
- Beans should be placed on perch; DO NOT hand bird treats
- Do not feed bird any other treats; bird is on a specific diet and excessive or inappropriate treats can have long-term health effects
- Beans are not left at perch, return uneaten beans to building and discard
- Clean area under perch of bean debris; crate bird before cleaning area

CHOOSING AN INTERPRETATION SITE

- Original boa perch is mostly in shade
- Desert Garden perch can be in shade or full sun depending on time of day and year
- Cat Canyon perch is inside
- Yucca Ramada perch is cooled in summer months

Choose a perch that is suitable for conditions (i.e., higher temperature - shaded perch; lower temperature - perch in full sun; out of temperature range - use inside perch)

PLACING BIRD ON PERCH

Basics at all perches
- Visually inspect site before removing bird from crate; report problems to IAC/RFF staff (do not trim plants)
- Place treats on perch before perching bird
- Place crate on stable surface near perch, if possible have crate off ground
- With stick in hand, open crate door
- Remove bird from crate with stick using same techniques as described in PICKING UP BIRD
- Hold stick lower and parallel to perch so bird can step up and forward
- Maintain a safe area of three feet around perch

- Always monitor bird; do not turn back to bird
- Store crate and stick
- Stay within five feet of bird
- Stand between bird and visitors while interpreting
- Do not encourage bird to talk during interpretation
- At end of interpretation, repack bird and return

If bird flies of perch
- If bird flies off perch, use stick to retrieve bird from ground; squat to side of bird; do not loom over bird; crate bird and return to IAC building; DO NOT continue interpretation
- If bird flies off perch and lands out of reach; have a visitor, docent or staff contact PBX and page IAC/RFF staff; DO NOT lose sight of bird
- Always record when bird flies off perch in DRB

Original boa perch
- Place crate in planter area on a level surface near perch
- Climb into planter area and stand within reach of crate and perch; do not walk with bird on stick
- Be aware of uneven ground in planter
- Watch bird carefully if visitors are on all sides of planter, if necessary ask visitors to move to one side

Desert Garden perch

- No barrier at this perch; handler is responsible for keeping visitors away from perch

Cat Canyon perch
- Perch is located in cabinet (key to unlock is on wall at counter top height)
- Pin for perch should be on wall bracket
- DO NOT use this perch if pin is missing
- Match hole on perch with wall bracket, insert perch in bracket, and slide pin completely through perch
- Perch should not extend into visitor area
- Perch bird from behind counter
- Return perch to cabinet

Yucca Ramada

- No barrier at this perch; handler is responsible for keeping visitors away from perch

BEHAVIORS AT INTERPRETATION SITE

- Talking - interpret bird's chatter as natural mimicry (i.e., parrots are vocal in their social groups)
- Shivering – mechanism to warm or adjust pocket of air between skin and feathers
- Funky right wing – clipped feathers to minimize flight and enable interpretation use
- Head bob – excitement
- Eating – natural use of foot and beak
- Dilating eyes – excitement, eye position

RETURNING BIRD TO PEN

- Remove bird from crate with stick using same techniques as described in PICKING UP BIRD
- Reperch bird; bird must step forward and up to perch
- Take stick and crate from pen, being aware bird's position while exiting
- Check carpet

If clean

- Leave in crate
  If dirty
  - Remove and hose carpet in holding pens; hang to dry
  - Replace with clean carpet
- Store crate, cover, and stick in middle room

BITES/INJURIES

- If bird bites, stay calm and do not pull away as parrots will likely bite down harder
- If bird bites once it is likely to repeat, therefore move cautiously around bird

- If bird bites while crating, do not take out for interpretation
- If bird bites during interpretation, crate and bring back to IAC building; if unable to crate bird – radio for help
- Wash bite with Septisol, complete Incident Report, and record in DRB

REPORTING BEHAVIORS
- Any stress signs, handling problems, unusual behaviors, observations, or injuries must be recorded in DRB

STRESS SIGNS
- Drooped wings
- Hyperactivity
- Panting
- Head held down by feet for extended period of time (three minutes at a time)
- Laying down on perch
- Alarm screaming for more than three minutes
- **STOP** interpretation immediately if any stress signs are present and return animal to IAC building

Interpretive Animal Collection
Arizona-Sonora Desert Museum

STANDARD HANDLING CERTIFICATION. **LILAC-CROWNED AMAZON**

TODAY'S DATE: TODAY'S DATE: TODAY'S
DATE:
ANIMAL: ANIMAL: ANIMAL:
TRAINER: TRAINER: TRAINER:

QUESTIONS

- It is 2:00 pm on a winter afternoon, and the temperature is 72; what would be the best interpretation site? Why?

- How long does the bird need to rest between interpretations?

- Several beans are left in the pouch after the interpretation, what should be done with them?

- The bird grabs at the stick with it's beak and does not step up, what should handler do? Why?

- What steps should be taken if the bird flies off the perch at the interpretation site?

- What critical information should be included in all DRB entries?

SET UP		Y	HE LP	N	COMMENTS
1	Grabbed key				
2	Crate (clean carpet) and stick to pens				
PICKING UP ANIMAL					
3	Locked pen door when inside				
4	Crate on oil pan (STABLE), door open				
5	Used stick properly to pick up bird				
6 *	Reacted to bird appropriately				
7 *	Placed bird into crate safely				
8	Closed crate door safely				
9	Supplies to interpretation				
WALKING WITH CRATE					
10	Crate cover on				
11	Crate level and steady				
12	Did not bang crate				
AT INTERPRETATION SITE					
13	Crate set down on safe area (STABLE)				
14	Placed beans on perch w/o bird				
15	Stick ready when opening door				
16	Opened door safely (fingers)				
17 *	Removed bird from crate safely				
18	Put bird on perch appropriately				
19 *	Monitored bird on perch				
20	Stored crate and stick properly				
CRATING AT INTERPRETATION SITE					
21	Crate set down on safe area (STABLE)				
22	Got bird on stick properly				

23 *	Reacted to bird appropriately				
24 *	Placed bird into crate safely				
25	Closed crate door safely				
26	Picked up beans from perch				
WALKING WITH CRATE					
27	Crate cover on				
28	Crate level and steady				
29	Did not bang crate				
RETURNING ANIMAL TO PEN					
30	Locked pen door when inside				
31	Crate on oil pan (STABLE)				
32	Stick ready when opening door				
33	Opened crate door safely				
34	Bird on stick properly				
35 *	Removed bird from crate safely				
36	Perched bird properly				
37 *	Exited and secured pen				
38 *	Handled bird with confident steady manner				
39 *	Reacted to bird appropriately				
40	Cleaned carpet if necessary				
41	Returned crate and stick to building				

*Critical handling skills; must have "YES" on starred items

APPENDIX C

DOCENT INTERVIEW QUESTIONS

1. Why do you docent at the Museum?

2. What do you tell others about your docent experience at the Museum?

3. How do visitors react to animals when you interpret them?

4. Describe how the opportunity to work with a live animal differs from other possible Docent opportunities here or at other institutions?

5. Tell me about your history with animal handling – which animals have you worked with, who taught you how to handle them, and how long did you handle them?

6. What is it like to learn to handle live animals at the museum?

7. Explain an animal handling experience with a trainer that went well?

8. Explain an animal handling training event that did not go well?

9. Did you want to participate in more animal handling training? Why or why not?

10. How could staff make animal handling training better?

11. What could Docents do to make animal handling training better?

12. What helps you learn most effectively -- Lecture, readings, demonstration, hands-on practice? Explain.

13. What things are particularly difficult for you with the animals or training?

APPENDIX D

DOCENT – ANIMAL OBSERVATION FORM

Time	Animal Behavior Description	Docent Behavioral Description	Appropriate Action Y/N

APPENDIX E

STAFF INTERVIEW QUESTIONS

1. Explain what it is like training Docents to handle animals?

2. What would you change about Docent animal handling training?

3. How would you change Docent animal handling training?

4. What has been most satisfying about training Docents to handle animals? (explain a training episode that went well)

5. What has been most upsetting about training Docents to handle live animals? (explain an episode that went poorly)

APPENDIX F

DOCENT WRITTEN SURVEY

Name: Date:

1. Why did you select the animals that you currently handle?

2. Describe what portion of animal handling training has been most helpful and why (SHP documents, classes, one-on-one training sessions, or practice on your own)?

3. Do the trainers help you learn to effectively handle live animals? If yes, how? And if no, how could they help you?

4. Describe specific example when an animal was not well behaved for you and what you did in response to the animal.

5. Describe what you would change about animal handling training?

6. How do you learn best (lecture, reading materials, hands-on practice with a partner, hands-on work alone, other)?

APPENDIX G

DOCENT SURVEY RESPONSES

Question Number	Summary of Response	Number of docent responses		
1.	**Why did you select the animals you handle?**	First Choice	Second Choice	Third Choice
1.	Natural history interest	41	28	0
1.	Perceived high visitor interest	18	13	3
1.	Comfortable handling the animal	11	5	1
1.	Diversity of animal groups	8	1	0
1.	Limited by restrictions	8	1	3
1.	Reduce scheduling conflicts	4	6	3
1.	Personal growth	2	3	1
1.	Did not receive animals requested	1	0	0
2.	**Describe what portion of training is most useful.**	First Choice	Second Choice	Third Choice
2.	One-on-one training	54	9	1
2.	Written Protocols	20	25	9
2.	Classes	12	5	2
2.	Self-practice	2	7	5
2.	Other	5	0	0
		Yes	No	Maybe
3.	**Do the trainers help you?**	84	1	8

Question Number	Summary of Response	Number of docent responses	Question Number	Summary of Response
		Example Given	No Misbehavior	
4.	**Describe incident where animal was misbehaved.**	75	18	
		Example Given	No Changes Needed	
5.	**Describe what you would change about training.**	63	30	
6.	**How do you learn best?**			
6.	Hands-on	45		
6.	Reading	22		
6.	Multiple methods	13		
6.	Self-practice alone	6		
6.	Lecture	4		
6.	Teaching someone else	3		

APPENDIX H

HUMAN SUBJECTS APPROVAL

THE UNIVERSITY OF
ARIZONA®
TUCSON ARIZONA

8 July 2005

1350 N. Vine Avenue
P.O. Box 245137
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(520) 626-6721

Susanne Tygielski, Ph..D candidate
Advisor: Bruce Johnson, Ph.D.
Department of Teaching & Teacher Education
College of Education
PO Box 210069

RE: BSC B05.168 ANIMAL HANDLING PREPARATION FOR ZOO VOLUNTEERS

Dear Ms. Tygielski:

We received your research proposal as cited above. The procedures to be followed in this study pose no more than minimal risk to participating subjects and have been reviewed by the Institutional Review Board (IRB) through an Expedited Review procedure as cited in the regulations issued by the U.S. Department of Health and Human Services [45 CFR Part 46.110(b)(1)] based on their inclusion under research category 6 and 7. As this is not a treatment intervention study, the IRB has waived the statement of Alternative Treatments in the consent form as allowed by 45 CFR 46.116(d)(2) and the need for signed informed consent has been waived for parts of the study, as the research involves no risks or procedures for which consent is normally required outside of the research context as stated in 45 CFR 46.117(c)(2). Although full Committee review is not required, a brief summary of the project procedures is submitted to the Committee for their endorsement and/or comment, if any, after administrative approval is granted. This project is approved with an **expiration date of 8 July 2006.** Please make copies of the attached IRB stamped consent documents to consent your subjects.

The Human Subjects Committee (Institutional Review Board) of the University of Arizona has a current Federal Wide Assurance of compliance, number FWA00004218, which is on file with the Department of Health and Human Services and covers this activity.

Approval is granted with the understanding that no further changes or additions will be made either to the procedures followed or to the consent form(s) used (copies of which we have on file) without the knowledge and approval of the Human Subjects Committee and your College or Departmental Review Committee. Any research related physical or psychological harm to any subject must also be reported to each committee.

A university policy requires that all signed subject consent forms be kept in a permanent file in an area designated for that purpose by the Department Head or comparable authority. This will assure their accessibility in the event that university officials require the information and the principal investigator is unavailable for some reason.

Sincerely yours,

Theodore J Glattke, Ph.D.
Chair, Social and Behavioral Sciences Human Subjects Committee

TJG:pm

cc: Departmental/College Review Committee

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