

SETTING THEM UP FOR SUCCESS: INVESTIGATING THE EFFICACY OF THE  
PHILADELPHIA ZOO'S OUTREACH EDUCATOR TRAINING PROGRAM, AN  
INFORMAL SCIENCE EDUCATION PROJECT

by

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A professional paper submitted in partial fulfillment  
of the requirements for the degree

of

Master of Science

in

Science Education

MONTANA STATE UNIVERSITY  
Bozeman, Montana

July 2011

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July 2011

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## ABSTRACT

Irrespective of the forum in which they teach, it is necessary for all educators to receive proper training before they can truly be effective teachers. This study investigated the current methods used to train the outreach educators working in the Philadelphia Zoo's Zoo on Wheels (ZOW) department. Using a combination of employee surveys and quiz, and interviews, this study examined the three areas which outreach staff need to be trained in order to be effective educators: animal handling, scientific knowledge, and the development of teaching and presentation skills. The results indicated that areas with defined training protocols had the highest levels of educator confidence and efficacy. Outreach employees indicated that knowledge acquisition is the weakest area in terms of formal training, with educators being responsible for developing their knowledge base on their own.

## INTRODUCTION AND BACKGROUND

### Project Background

#### My Personal Background: Why I'm Interested

I have always been interested in animals. When I was a child I would look forward to family outings or school field trips to the zoo and the aquarium. I would spend hours watching the animals. If given the chance, I would ask the keepers countless questions, never missing an opportunity to learn more about my favorite animal of the moment. Now that I am an adult this has not changed. I still eagerly anticipate trips to new zoos and aquariums. Even better, I have been fortunate to have my career working in these institutions. I started in animal care, working with marine mammals, and have progressed to working in education.

Especially at accredited zoos and aquariums, recently much more emphasis has been put on the role of education. As the world's species are disappearing at an increasing rate, and issues such as climate change become more mainstream, zoological institutions become perfect venues to reach out to the general public and combine a fun outing with raising awareness. Besides just having programs at the zoo, education departments have the opportunity to reach out to a wider audience through outreach visits, teaching classes or being present at community events. I work in such a department, the Philadelphia Zoo's Zoo on Wheels program. As an educator with Zoo on Wheels (ZOW), I reach out to many students and groups, teaching people about animals and about why conservation is such an important issue.

## The Outreach Department at the Philadelphia Zoo

Zoo on Wheels is the department at the Philadelphia Zoo that is responsible for all of the off-site education programs that the zoo offers. The department serves the greater Delaware Valley, visiting sites in Pennsylvania, New Jersey, Delaware, Maryland and occasionally New York State, up to two hours away by car from the zoo. The department offers outreach programs for elementary, middle, high school and college classes and assemblies, “Little ZOW” programs for children ages three to six, “Tiny Tot” programs for children ages infant to three, programs for students with special needs, informational booths for corporate or community programs and events, and after school programs. Subjects for the classes range from classification based (“Fur, Feathers, Skin and Scales” a mammals, birds and reptiles class) to thematic courses (our newest course is one on climate change), all of which have an emphasis on conservation. Additionally, ZOW offers birthday party packages, which includes an animal show, face painting, arts and crafts, and games. Outreach educators will also do animal shows for in-zoo birthday parties, called ZooFiestas. For all programs, educators generally bring out at least four different animals.

Currently, there are about 45 educators who work for ZOW. There are two full-time staff members – our manager and assistant manager – a scheduled part-time educator, one to two lead educators (also part-time), and the rest are part-time educators who work from four to 35 hours a week. There is a wide range of background experiences amongst the educators, with some coming from an animal care background, and some with lots of education experience. Some of the employees are high school students who have interned at the Philadelphia Zoo. Additionally, there is a large range

in the amount of time that the staff has been with ZOW. Many have been with the department for several years, however as the positions are part-time, there is a large turnover of staff during the year. Over the past five years, there have also been several changes in the leadership of the department, which has resulted in significant changes to the training procedures of ZOW staff. Due to the fact that many staff started with ZOW under different management, they have had different initial training experiences.

All ZOW part-time employees are trained on most types of programs, however due to scheduling not everyone regularly teaches every type of program. Some educators work primarily on the weekends and so lead mainly birthday parties and booths, while others work primarily during the week and are responsible for teaching most of the school programs. The different programs require very different skill-sets, much of which is learned while on program.

Many employees also work for other sections of the education department at the zoo. The education department at the Philadelphia Zoo is broken down into four distinct areas: Zoo On Wheels, In-Zoo Education Programs, Night Flight, and the Public Programs department. This last group is responsible for the in-zoo interpretation in the garden, by exhibits. The In-Zoo Education Programs department is responsible for seasonal zoo camps, lessons that visiting schools can include with their field trips, and a variety of workshops held throughout the week for younger children. The Night Flight department is responsible for the “Roars and Snores” overnight programs held at the zoo. These are offered for families, schools, scout troops and community groups and include an animal show, as well as a nighttime hike around the zoo and a lesson, activities and crafts. Each area of the education department has its own training procedures and each

department is also responsible for training their staff on animal handling for beginner level animals.

The Philadelphia Zoo has a separate collection of animals that are used in educational programs. These program animals are separate from the animals seen on exhibit and include over 70 species and 150 individual animals. These animals are cared for by the keeper staff of the Children's Zoo. The managers of the Children's Zoo are the ones who set the training procedures for animal handling and presentation. The animals within the program collection are divided up into five categories of difficulty, with education staff being trained on more difficult levels as department need and demonstrated animal handling competency allow. As each species has its own special handling requirements, it is crucial that there is consistency in policies and procedures regarding the animal care and handling. While each department is responsible for training their staff on beginner level animals, the Children's Zoo animal keepers will conduct the training for higher-level animals.

#### Research Question

I settled on my primary focus question shortly after I was asked to take part in the training of a new employee. I had not received any formal instruction about how to train the new staff member, and while my task was to have her sit in on and observe several of my outreach classes, I was unsure about how best to address her questions and provide an effective learning experience for her. I wondered if my experience training a new employee was shared with others in the department. More importantly, I wondered if the new employee felt that she was receiving enough instruction to prepare her to be a successful outreach educator. My primary focus question then is: how effectively does

the current training program utilized by the outreach department at the Philadelphia Zoo prepare new employees to be successful outreach educators? I plan on looking at the three main aspects of the Outreach Department's current training program: animal handling and presentation, learning the scientific knowledge needed to teach the programs, and learning how to be an effective educator in terms of classroom techniques.

## CONCEPTUAL FRAMEWORK

When people think about education, likely the image that comes to mind is that of students sitting at desks. Learning is generally perceived as something that is done “in school or in a formally organized setting” (Thomson & Diem, 1994, p. 2). However, in many developed nations, there is a sort of crisis in science education as students’ “attitudes to school science decline progressively across the age range of secondary schooling,” (Braund & Reiss, 2006, p. 1373). Science educators have expressed concerns that current requirements in schools is “all too often boring, irrelevant, and outdated, [and not] equipping the majority [of students] with the scientific understanding, reasoning, and literacy they require to engage as citizens in the 21st century” (Braund & Reiss, 2006, p. 1373). Museums, zoos and aquariums, considered by involved educators and field biologists alike as “venues for science education” (Fraser & Sickler, 2008, p. 18) — often referred to as informal science institutions — are environments outside of the schools with a “history of partnering with schools through field trips and outreach programs” (Phillips, Finkelstein, & Wever-Frerichs 2007, p. 1490), classes, workshops, day camps and tours (Thomas & Diem, 1994). Informal environments are “rich resources for

learning throughout our lives” (Thomas & Diem, 1994, p. 2), and the way science is communicated in these informal settings is often seen as “exciting, challenging and uplifting” (Braund & Reis, 2006, p. 1374). As well, these types of informal education settings can have measurable benefits for students’ performance. According to Knowlton and Ring (2008), “A recent study conducted in California by American Institutes for Research found that students participating in outdoor education significantly raised their science scores by 27%, as measured by a pre- and post-survey administered immediately upon their return to school” (p. 13).

The field of informal education is extremely wide-ranging. As described by Reis and Roth (2007) in their investigation of informal education curriculum design, the community of educators is “composed of a variety of people designing all sorts of activities for different audiences (elementary, high school, undergraduate and graduate students) in equally diverse sites (zoos and aquariums, forest, wetland and lagoon), thus taking different positions” (p. 311). Programs can range from a single 45-minute session all the way up to a residential, multi-day course of study. Subjects taught run the gamut from introductory animal biology and ecology courses to very specialized courses, depending on the audience and the program. Indeed, the education staff at these informal learning centers has “a responsibility to provide diversity of learning opportunities” (Thomas & Diem, 1994, p. 4).

The role of informal educators is represented in the unique niche of conservation in teaching about biodiversity, conservation, and related environmental topics using hands-on techniques (Kruse & Card, 2004), and specialized classes. Since the classes are so specific and often done outside the traditional classroom environment – for example in

places like zoos or outdoor science centers – this type of education gives students a chance to do something that is not made evident through report cards and tests: it not only allows for the transfer and dissemination of information but it is also counted as a relevant resource for both learning and evaluation (Reis & Roth, 2007) and changes in perception. Effective educational techniques may lead to environmentally responsible behavior for example (Kruse & Card, 2004). Students who participated in outdoor education had “significantly larger gains in environmental behaviors, compared to children who did not attend the program,” (Knowlton & Ring, 2008, 13), with their parents observing their children engaging in “positive environmental behaviors” such recycling, at home. One of the main advantages of informal learning is that students have an opportunity to “see and interact with real things, not just pictures, words, or recorded sounds” (Thomson & Diem, 1994, p. 3). Additionally, many education departments at zoos have an invaluable resource at their disposal: live animals that can be brought in to classes, either at the zoo or off-site.

Being able to use live animals to educate people about conservation issues is invaluable in helping them make a connection with the wider world. “The display of animals to the public educates visitors about animals they seldom, if ever, get to see. It provides visitors with an awareness of animals and gives us a unique opportunity to teach them about the plight these animals face in the wild” (Ramirez, 1999, p. 11). The Association of Zoos and Aquariums (AZA), an organization made up of members of the zoo and aquarium community that is committed to the “advancement of zoos and aquariums in the areas of conservation, education, science and recreation” (2009),

recently conducted a study that measured the impact of zoos and aquariums on visitors (Vernon & Boyle, 2008). The study demonstrated that,

Zoos and aquariums all over this country are making a difference for wildlife and wild places by sharing their passion for conservation with more than 157 million visitors a year. By creating interactive exhibits, interpretive tours and educational programs that bring people face-to-face with living animals, zoos and aquariums profoundly influence their visitors in significant ways. (p. 7)

As well, 42% of individuals surveyed for the study commented on the importance of zoos and aquariums in education. “AZA institutions are leaders in conservation education, constantly seeking to become more effective in connecting our visitors with nature and inspiring them to become personally involved in conservation” (Vernon & Boyle, 2008, p. 9)

However, as with any form of teaching, it is important that the educators be trained effectively in order to best impart the information to the students. In all areas of education, improving teacher performance is a high priority, and “increasing teachers’ job-related learning [is] seen as one of the main ways of achieving this improvement” (Hodkinson & Hodkinson, 2005, p. 110). There is a criticism that science learning in informal environments can be somewhat insubstantial, “that misconceptions are initiated or fostered, and that engagement through enjoyment of the interactions that take place is far more important than educational gains so that claims for any true learning may even be dishonest” (Braund & Reiss, 2006, p. 1377). This is one of the reasons why it is so important that the educators doing the teaching need to be well versed in both the information they teach and how to impart that information to their audiences so it can be

seen as a valuable source of learning. Educators in informal education settings need specific professional development training so they can best respond to the needs of the wide variety of learners they encounter (Thomson & Diem, 1994).

As well, when you add animals into the teaching environment, a new set of considerations become necessary. For example, it is important for those working with animals to learn about the natural and individual history of the animals that they work with (Colahan & Breder, 2003), especially if the educator is going to teach others about those animals. Consistency is the key to working with animals to best make sure the animals are comfortable going out into classrooms and being around other people. With live animals in a room with students, safety is paramount and it is extremely important that the educator can comfortably and confidently handle the animal in a classroom setting. When many educators work with the same animals, it falls on the shoulders of the managers to “provide the training and support to the entire staff and ensure that the agreed on training plans are being implemented” (Colahan & Breder, 2003, p. 243).

What, then, is the best way to train new educators who work in an informal education setting? Educators in an informal education setting are “often knowledgeable of the most recent developments in science research, as well as how to teach and learn science through hands-on, inquiry-based activities and projects” (Phillips et al., 2007, p. 1497), but how do you effectively teach these skills to newcomers in the department? “New teachers have two jobs: they have to teach and they have to learn to teach” (McCormack et al., 2006, p. 97). Educators need to “promote learning environments in which students feel secure and supported” (Mathison et al., 2007, p. 207), but how do educators who have never taught before know how to create this sort of environment?

Several factors can hinder a new teacher's professional development. For example, assigning "beginning teachers to difficult classes or classes that others did not want to teach, or assigning them to teach subjects for which they have little or no background training" sets them up for discouragement or failure (McCormack et al., 2006, p. 108). However, educators at zoos and similar institutions are limited because they generally do not get to choose the class to teach. Clients – teachers, schools or other groups – choose the programs based on their needs and educators have to teach those classes, regardless of their own skill and experience. It is not uncommon for an educator to be handed a sight-unseen script or lesson plan and be expected to teach the class later that day. Also, because educators in informal education settings often start with a wide range of previous experiences and not necessarily a teaching background, they may not have many tools at their disposal to quickly gain the necessary teaching skills.

One advantage that many education departments have, however, is a sizeable number of educators who can be used to help train newcomers. Though education departments are often very busy, new educators will be able to integrate more quickly and effectively into the department if they are given useful attention. Peers and mentors in the same department can fill the absence of formal teacher training. New teachers have reported, "collaborative, informal, unplanned learning from colleagues and former peers [were] a most significant and valuable source of support" (McCormack et al., 2006, p. 95). Establishing an apprenticeship-like program where by new teachers are paired with more experienced mentors allows the novice to gain mastery in the field, "first through observation, and then later through direct experience" (Robinson, 2001). This type of training and support can encourage "greater levels of professional conversation, and

advice and assistance including team teaching and observations of lessons” (McCormack et al., 2006, p. 107). In this way, new teachers are more satisfied with their preparation to handle classes on their own as they have previously experienced these situations with guidance (Scharmann, 2007).

## METHODOLOGY

### Participants

Zoo On Wheels employees show a very wide representation of demographics. All employees are current residents of the greater Delaware Valley, living within two hours of the Philadelphia Zoo in Pennsylvania, New Jersey and Delaware, though many are non-native to the region. Ages range from 17 to over 60, though most of the employees are in their mid-20s. Employees represent a large spectrum of cultural backgrounds. Of the 45 active ZOW employees, there are a larger number of female employees (35) than male (10). Zoo On Wheels educators include full-time students at the high school or college level, people who work full- or part-time in other institutions or professions, retirees, or people who work full-time at the zoo. They also have varying educational backgrounds, some in the process of completing their final year of high school, some in or recently completed undergraduate programs, and others working on their masters or doctorates. Those with a minimum of a bachelor’s degree have a wide variety of majors, including biology, psychology, education, theatre, zoology, environmental science and literature. There is a wide range of experiences with regards to teaching and presentation experience, as well as animal handling experience.

Zoo On Wheels employees eligible for participation in this study were those 18 years of age or older who had worked for ZOW within one year's time of the study. While most of ZOW's educators consider ZOW their "home base" at the Philadelphia Zoo, many employees eligible for this study also work for other areas of the education department (In-Zoo Programs, Public Programs and Night Flight). For those whose "home base" is a different area in the education department, they can still be considered part of the pool of available ZOW educators. The amount of time the educators have been employed by ZOW varied considerably amongst the participants, from only a couple of months to more than 10 years. Additionally, the number of days that they spend working for ZOW each month also varies, from two days a month (the minimum required availability to remain an employee) to 40 hours a week (full-time).

#### Treatment

To examine how effectively ZOW prepares its employees to be educators, I used a combination of surveys and interviews with ZOW employee and managers in the education department to gauge people's perceptions of the training procedures (Table 1).

Table 1  
*Data Triangulation Matrix*

Focus Question: How effectively does the current training program utilized by the outreach department at the Philadelphia Zoo prepare new employees to be successful outreach educators?			
Sub questions	Data Source		
Sub question 1: How are new outreach educators trained on animal handling components?	Survey responses from outreach educators	Interview responses with selected outreach educators	Interviews with outreach department managers Interview with Children's Zoo keepers and managers
Sub question 2: How are new outreach educators trained to be effective educators?	Survey responses from outreach educators	Interview responses with selected outreach educators	Interview with outreach department managers
Sub question 3: How are new staff trained on or taught the scientific information needed to effectively teach their programs and communicate the Philadelphia Zoo's message?	Survey responses from outreach educators	Interview responses with selected outreach educators	Interview with outreach department managers
Sub question 4: How does the outreach department's training procedures compare with that of the other education departments at the Philadelphia Zoo?	Survey responses from outreach educators who were also trained in other Philadelphia Zoo education departments	Interview responses with selected outreach educators who also work for other Philadelphia Zoo education departments	Interviews with outreach department managers Interviews with managers of the other education departments at the Philadelphia Zoo

Questions in the employee survey asked about their experiences in the three separate areas of training: animal handling, knowledge acquisition and presentation skills development (Appendix A). The survey started with a general overview, asking for some information on the employees' history with the department. This allowed me to compare

people's experiences depending on how long they have been with ZOW. I also asked them about their animal handling and presentation experience prior to their employment with ZOW, to obtain a more complete picture of the variability in employee backgrounds. Additionally, I asked participants questions on their continuing training, to see how ZOW maintains the desired skill levels of its employees. The survey concluded with summary questions asking the employees to synthesize the separate components of their training and comment on their training experience as a whole.

Additionally, I also administered an anonymous, computer-based 15-question knowledge quiz to ZOW employees (Appendix B), asking them questions that should be common knowledge to all ZOW employees upon completion of their training. The quiz was largely multiple-choice, with one short-answer question asking about the overall mission of the Philadelphia Zoo, something that all Philadelphia Zoo employees are expected to know. This quiz was to be completed from memory, thereby allowing me to assess retention of information that they learned in their training. Questions in the quiz covered all aspects of routine ZOW procedures, including: basic animal handling procedures, presentation skills such as quieting techniques, general knowledge about our animals, and procedures regarding driving and communication. To ensure that all participants had the same capacity to answer all of the questions in the quiz, I limited the animal examples to animals categorized as Green or Yellow level animals, those being the first level of animals that employees get trained to work with. Additionally, I only selected animals that were commonly sent out on program, thereby minimizing the chance that an employee has had limited exposure to that species.

Both the survey and the knowledge quiz were administered anonymously, and the results were collected and tabulated online using GoogleDocs. Links to the online survey and quiz were sent to participants via e-mail. There were separate links to the survey and the knowledge quiz, though in the introductory e-mail participants were asked to take the quiz right after completing the survey. The participants were given a two-month period, from March to April 2011 to respond before the survey and quiz were taken offline.

After the initial survey responses were collected, I conducted interviews with select educators to gain a better understanding of how the training procedures have been received (Appendix C). When I approached employees about participating in the study, along with providing the links to the survey and quiz I asked for volunteers who would be willing to be interviewed about their ZOW training experience. Interviews were conducted in person, over the phone, online via Skype, or over e-mail. Responses to the interviews were kept anonymous, allowing participants to be candid. Each participant interviewed was asked five standardized questions, and then follow-up questions were posed based on their initial answers.

To gain greater insight into the rationale behind the current training procedures used for ZOW, I also conducted interviews with the manager and employees responsible for training new outreach educators (Appendix D). I asked about the history of the ZOW department, the development of the current training model, how it is assessed and revised, as well as how consistency is maintained amongst a relatively large sized team of educators. Again, they were each asked five standardized questions and then follow-up questions were posed based on their initial answers. As animal handling is a large component of outreach education at the Philadelphia Zoo, I also conducted interviews

with the Children's Zoo curator (Appendix E) to see how the animal handling procedures are established, and revised. In particular, I asked about the special considerations needed when teaching a class using animals and how those special considerations can be conveyed to new employees.

Since many of the educators who work in ZOW also work in other areas of the education department at the Philadelphia Zoo, I also interviewed the managers of the separate areas to see how their own training procedures were developed (Appendix F). My main question with these interviews was to see if there was any additional training that those employees went through when moving from one department to another. As well, I wanted to find out if there were any discrepancies in training procedures that might lead to ZOW employees not being consistent with ZOW procedures.

The research methodology for this project received an exemption by Montana State University's Institutional Review Board, and compliance for working with human subjects was maintained.

## DATA AND ANALYSIS

Of the 45 employees approached for this study, 21 people responded to the educator survey. At the time of taking the survey, participants had worked with ZOW from four months to over seven years. Out of the 21 participants, 57% consider ZOW their "home base" at the Philadelphia Zoo. Also, 33% of them started working at the Philadelphia Zoo with ZOW; the rest had started in other areas of the educator department, with the second largest area represented being the Public Programs

department. The majority of participants (38%) indicated that they only went out on program with ZOW once or twice a month. Nineteen percent went out three to four times a month, another 19% went out on program more than 10 times a month, and the remainder went out on program between five and 10 times a month.

Of the 45 employees approached for this study, 17 people responded to the knowledge quiz. The quiz was designed to test retention of key points of their training, and asked the participants to select from memory the correct answers to questions on animal handling, presenting skills, general knowledge about the animals we work with, as well as basic Philadelphia Zoo procedures. Though the questions were not meant to be tricky, surprisingly only one person out of the 17 answered all of the 14 multiple choice questions correctly! The average score on the multiple-choice portion of the quiz was 76.9%, which means most people only answered about 10 of the 14 questions correctly.

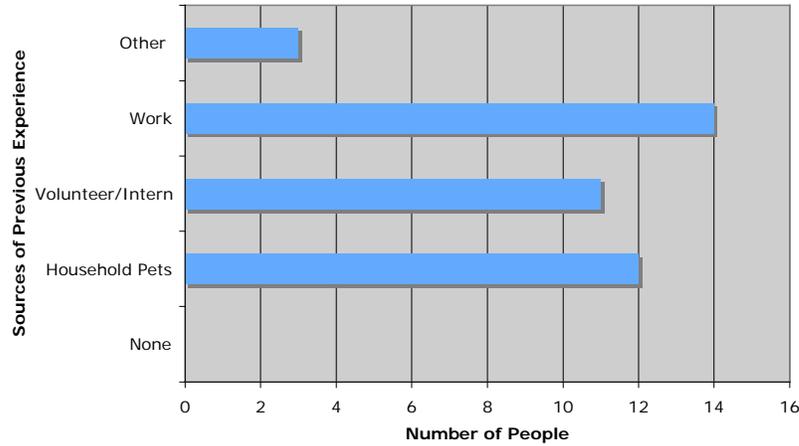
Over the three main areas in which ZOW employees are trained, it was very clear which areas participants considered strong training-wise, and which were in need of improvement. When asked which area was the strongest, 81% of participants chose animal handling training and when asked which area was the weakest, 72% chose knowledge acquisition (Figure 1). Only 14% of participants said that presentation preparation was the strongest component, however the same percentage considered it one of the weaker areas of training. In the quiz responses, participants showed a strong, basic grasp of the animal information. The questions that quiz participants seemed to have the most trouble on were evenly split between questions regarding presentation skills and, surprisingly, procedural questions.



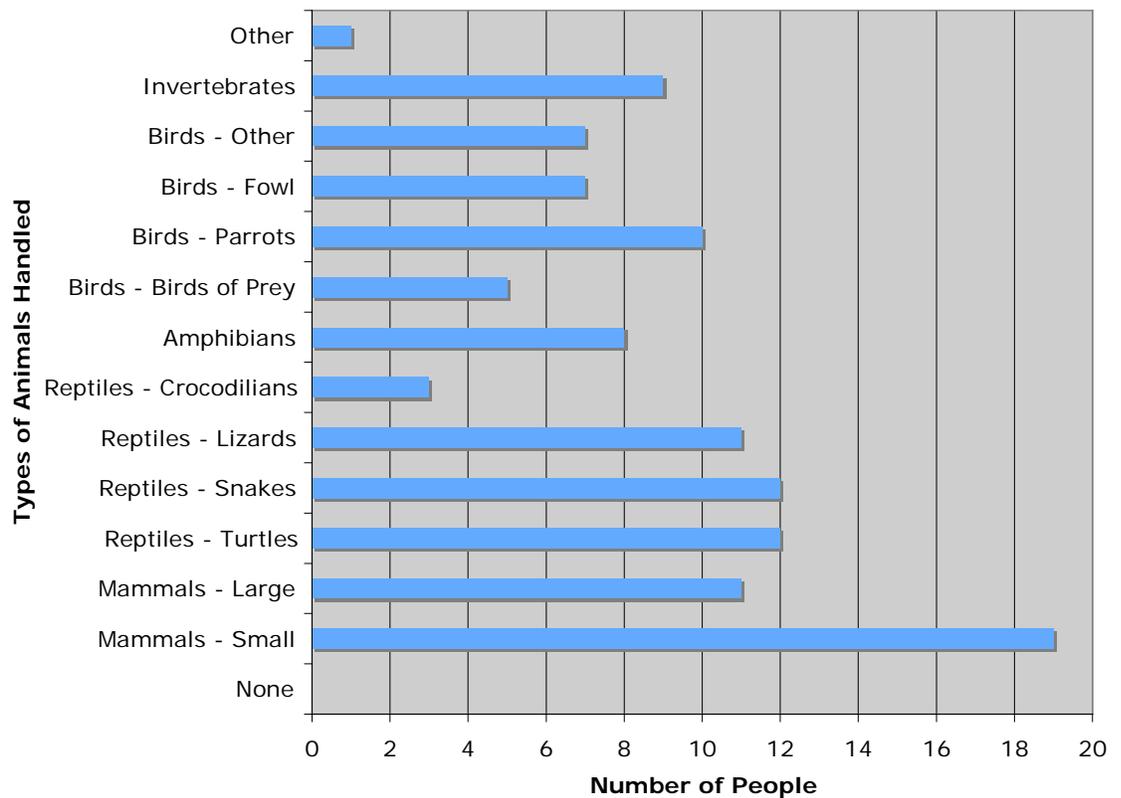
*Figure 1.* Strongest and Weakest Areas of Training in the ZOW Department as Indicated by ZOW Educators, ( $n=21$ ).

### Animal Handling

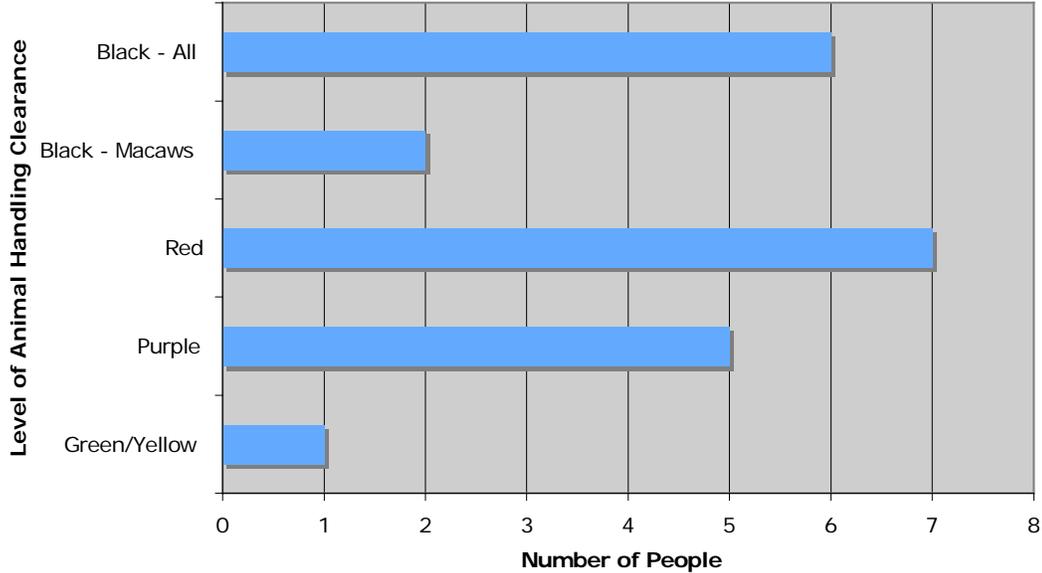
The fact that educators consider the animal handling training procedures the strongest is not surprising as it is the least “abstract” area, as one survey respondent put it. It is the area that can be most affected by the variability that comes with new employees. As indicated in the introduction, new ZOW employees come to the department with an extremely varied background with regards to animal handling experience. All participants in the survey reported that they had had some previous exposure to working with animals, (Figure 2), and the range of animals they had worked with prior to starting with ZOW was extensive (Figure 3). At the point of taking the survey, the majority of respondents had worked at the Philadelphia Zoo, if not in the ZOW department, long enough and have displayed the need to have advanced past the basic level of animal handling (Figure 4).



*Figure 2.* Sources of ZOW Employees' Animal Handling Experience Prior to Being Hired by ZOW. "Volunteer/Intern" and "Work" categories both refer to experience obtained at a zoo, aquarium, museum, animal shelter, veterinary clinic, etc., including the Philadelphia Zoo if they were in another department, ( $n=21$ , though participants were asked to choose all the prior experience they had had).



*Figure 3.* Types of Animals ZOW Employees had Experience Handling Prior to Starting with ZOW. Under mammals, "large" and "small" refers to the handler's ability to manage the animal in hand, ( $n=21$ , though participants were asked to select all that applied to them).



*Figure 4.* Highest Level of Animal Handling Clearance by Survey Participants. “Green/Yellow” is the most basic level, whereas “Black – All” is the most difficult level to get approved for. “Black – All” includes macaws and crocodilians, ( $n=21$ ).

Participants reported that the majority of their animal handling training was conducted by either a ZOW supervisor, or else a Children’s Zoo keeper, with Black level training and some Red level training being reserved solely for Children’s Zoo keepers to conduct. Most training at the Green/Yellow level was conducted with more than one new employee being trained at a time, and 76% of participants reported that after completing their initial Green/Yellow animals training sessions they felt confident that they could handle and present all of the animals covered in the training in front of an audience. For the participants who responded otherwise, 14% said they were somewhat ready, while 10% said no. Discomfort seemed to stem from working with individual animals or species, as one respondent explained, “[I] needed some extra time and work with some individuals, for example Lady Grey [a cage-aggressive rabbit], Chad [a Senegal parrot], giant frogs.” However, that respondent felt comfortable expressing this to supervisors

who were supportive.

After their initial animal handling training sessions, new employees have to fill out an animal handling checklist when packing and transporting animals on program (Appendix G). This helps to ensure that they are following proper protocols. Considering the number of species that they learn during their animal handling training sessions, the checklists also serve as a reminder of the steps they need to take when going out on and returning from program. Currently, these checklists are only required for new employees and for people who have made mistakes and need a reminder of steps to take. Checklists are not required after being trained on higher level animals, though after making a mistake handlers of all levels can be put back on checklist.

Practically, it makes a lot of sense that the animal handling component is the area in which the training is the strongest. As one of the survey respondents pointed out in their explanation for their answer, “because the animals’ physical safety is at stake, [those who determine animal handling procedures] have come up with very rigorous protocols for this.” These protocols encompass the actual holding of the animal, properly packing the animal for transport, moving the animal from enclosure to the carrier and back, preparing travel diets, presenting with the animal in hand or on a table, transport of the animal in the carrier and in the car, and cleaning of the carriers after use. It also includes responding to anything out of the ordinary that might happen, for example if a bird flies off of the educator’s hand and out over the audience. When out on the road, the educator is the person solely responsible for the welfare of the animal and therefore needs to be trained to be responsible.

The animal handling procedures for the teaching collection are constantly evolving. As the curator for the Children's Zoo put it, the training procedures are determined "typically through lots of trial and error because there are no manuals or bibles about how to do animal programs." The procedures are considered "living documents," in that they respond to various situations that arise. Officially, the procedures are read through and revised once a year and a new version animal handling manual is published. However, every other week an animal handling team, made up of representatives from each section of the education department and the Children's Zoo keeper staff, meets to discuss issues that have arisen pertaining to the animals themselves and to the protocols. Based on whatever has happened recently, the team might decide that changes have to be made to the protocols, in which case they would not wait for the yearly review. Those changes would immediately be sent out in the ZOW weekly e-mail updates, and it is the employees' responsibility to learn the new changes.

One of the reasons why the protocols for animal handling have to be so well defined is because there are a large number of educators who handle and present with the same collection of animals. The Philadelphia Zoo has one of the largest teaching collections as well as the highest volume of educational programming out of its peer institutions. For the success of these programs, the animals themselves have to be comfortable being handled in front of an audience, often in novel settings. The animal handlers themselves determine this. If the animal has had a stressful experience at one program, then it is less likely to "behave" on another program. The vast majority of our program animals are trained to cooperate in their handling in some fashion or another; for example the birds we bring out on program are trained either to step up on to the

presenter's hand or onto a perch. To maintain this behavior it is necessary for everyone to be consistent with the cues that they give the bird so that they fully understand what it is we are asking them to do. As Ramirez (1999) put it,

As with all elements of training, consistency is very important. How the cue is given and what the cue means should not vary over time. Trainers, when maintaining behavior, will often get sloppy in giving the animal a signal. A sloppy [cue] is the equivalent of developing a speech impediment. Mild variations in pronunciation are usually understood but the more severe the impediment, the more difficult the words are to understand. When animals have difficulty understanding, they will often try to "guess" what is meant. We should not put our animals in that position. (p. 75)

There have been several instances of animals either being taken off-program – or increased in difficulty rating – because of deteriorating trained behaviors or decreased ability to be handled. As the education department evolves, and with the future opening of the new Hamilton Family Children's Zoo – tentatively set to open in the spring of 2013 – there is a plan to shift to a smaller team of animal handlers, who would be able to do more complex behaviors with the animals. A smaller team would make it easier for consistency to be observed, however with the number of employees required to staff birthday parties and other weekend events, there will always be a need for tight protocols regarding animal handling.

There are several methods that have been recommended as to how consistency can be maintained. The first is to minimize the number of people being trained on animal handling at one time. One survey respondent who had trained with two other trainees said

that having the other two people there meant, “that I didn't have as much hands-on time with all the animals as I would have liked. As well, it was not as individualized.” Another participant who had trained with three or more trainees said that they felt nervous handling the animals for the first time in front of other people. As well, many respondents commented on the fact that with a large collection of animals there is a lot of information to remember during training. Generally, new employees get trained on all of the Green/Yellow birds and mammals in one session, and then all of the Green/Yellow reptiles and invertebrates on another day, however it is not unheard of for all Green/Yellow animals to be taught in one, marathon session. The Green/Yellow birds/mammals training includes over 15 species of animals, each with their own animal handling procedures. The Green/Yellow reptiles/invertebrates training includes over five species, and an additional selection of species of snakes. It may take a few months before the new employee has been assigned all species of Green/Yellow animals for their programs so it is important for them to recall the knowledge learned at their training maybe a few weeks or even a couple of months after their initial session. Theoretically, animal handlers are required to have an animal handling refresher session once a year to help maintain their technique, however this practice has lapsed due to a myriad of reasons, most particularly staffing issues and time constraints.

Another method the animal handling team has developed to maintain consistency is to post photos of proper packing procedures in the carrier barn where educators pick up their carriers, and photos of animal handling techniques near the animals' enclosures. Then, even if the educator has not handled a specific animal in a long time, they have those resources available to them to refresh their memory. Even more beneficial is the

use of video to demonstrate proper animal handling technique. The keepers at the Children's Zoo made a DVD of proper animal handling technique for Green/Yellow level animals, which had been distributed to new employees. This allows the new employee to see the desired technique after their initial training, rather than reading a description and having their imagination fill in the gaps. As well, it has the additional benefit of teaching the new employee observational skills, which is a necessary skill when working with animals. These tools are in addition to the Children's Zoo keeper staff who, if present when the educator is packing up the animals for program, are available to answer questions and assist with packing if necessary.

Despite the rigor that is employed in the animal handling portion of new employee training, I was especially struck by the variability in the responses to the procedural questions on the quiz because unlike the questions regarding presentation skills, the answers for these questions are defined in ZOW employees' training manuals, are specifically addressed in training and are often reiterated in the weekly update e-mails, especially if there has recently been a change regarding procedure. Question nine on the quiz is a prime example of this. Question nine asked participants to identify the proper cleaning procedure for a carrier after the box turtle they brought out on program had produced stool. After removing the debris, the correct procedure is to spray the carrier with "green soap," (as it is commonly referred to by employees), let the soap sit in the carrier for five minutes, wipe dry with paper towels, spray with water, then wipe dry with paper towels. If the participant had not worked since June 2010, I also accepted the answer, "spray with 'pink soap,' wipe dry with paper towels, spray with water, wipe dry with paper towels." This was the former procedure and if a participant had not worked in

ZOW since the change than the answer would be correct. Taking that into account, only nine of the 17 participants, just over half, answered correctly. The fact that almost half of the participants could not identify the correct method of cleaning out a carrier is disconcerting, because that could potentially be an issue of concern for the animals. This is not to say that the educators do not do a proper job of cleaning out the carriers, however they should be able to identify the correct answer when it is presented to them.

One of the ways that ZOW employees are constantly updated about changes in procedure is through the weekly update that is sent out by the ZOW managerial team. Employees, upon receiving the e-mail, are expected to reply acknowledging receipt and it is part of their responsibility to read through the e-mail for updates and important information. Five of the participants did not select this as answer to the question, “You have received a weekly update e-mail update from Erin [the ZOW manager]. After reading the e-mail, what is the proper response?” This could mean that some ZOW employees are not aware they are supposed to acknowledge receipt of the weekly update. However, it could also indicate that ZOW employees are not reading their weekly updates and internalizing the information therein, thereby accounting for errors being made in procedures like carrier cleaning.

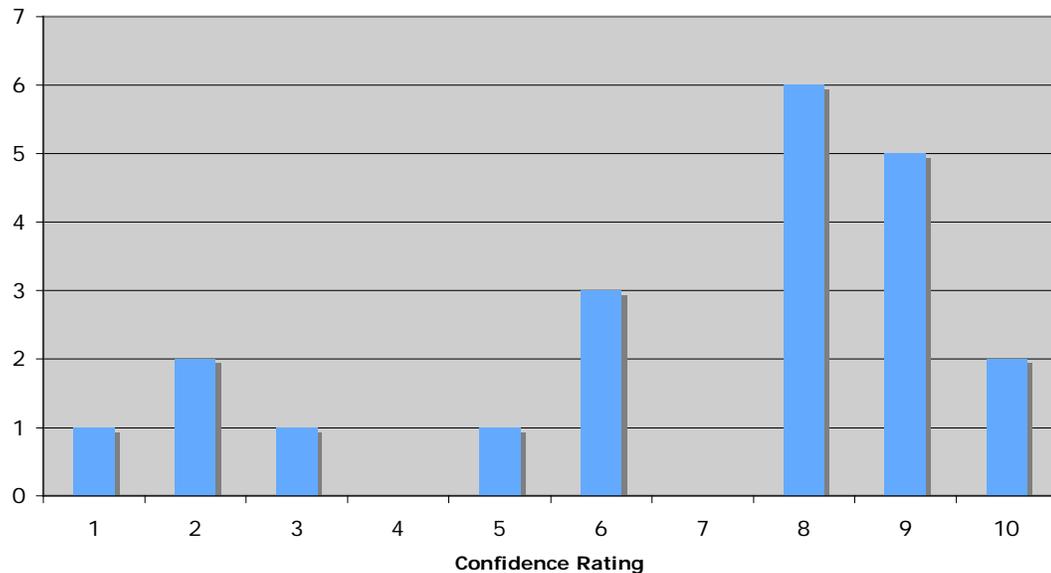
Most concerning was the responses to the question about reporting animal issues to keeper staff. Since ZOW educators bring animals out to schools and other venues away from the Philadelphia Zoo, it is important that we are able to communicate anything out of the ordinary with the animal keepers at the Children’s Zoo. If there is an animal emergency while on program, we are to call into the Philadelphia Zoo immediately to inform them and to receive guidance. However if something happens on-program that is

unusual that is not an emergency, it is still important for us to let Children's Zoo keepers know so that they are aware of the occurrence and, if necessary, can monitor the animal. Oftentimes programs keep us on the road past zoo closing and when we return to the Philadelphia Zoo the Children's Zoo keepers have already left for the day. In that case, it is the educator's responsibility to leave a message for the keepers relating the incident. Unfortunately, only 35% of the participants correctly identified the number for the Children's Zoo keepers! There are several reasons why educators might not know this number by memory. First of all, this information is listed in the ZOW educator binders that are in every ZOW vehicle; if the educators needed to find what number to call, they should all know where it is located. Second, most people store their numbers in their cell phones and rarely memorize numbers. Perhaps they were not able to identify the number by sight unless they called it up from their contact list. Third, the only time this number is actively mentioned is during the employee's initial training. If they have been working with ZOW for a long time, especially in conjunction with the first two reasons, it is likely that they no longer know the number by memory. As it is an important number for ZOW educators to know, however, it might be worthwhile for managers to send out reminders in the weekly updates of key contacts at the Philadelphia Zoo, just to reinforce the importance of those numbers.

#### Presentation Preparation

Most of the survey respondents indicated that they had had some type of presentation experience prior to starting with ZOW. Only two respondents indicated that they had no prior teaching experience, and three people said that they had no prior public speaking experience. For the others, teaching experience ranged from interpretation

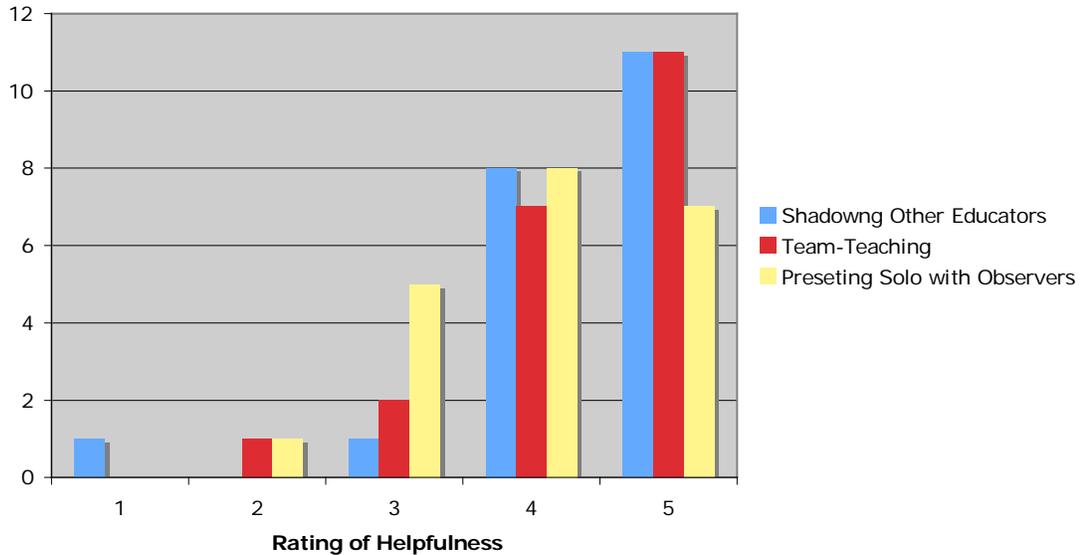
experience, for example as a docent at a zoo or museum, to in-school teaching for preschoolers to high school students. Specific examples of prior public speaking experience included theatre or musical performance, or presentation/narration in front of an audience. With all of the prior presentation experience, many participants indicated that at the start of their ZOW training they felt comfortable speaking in front of an audience (Figure 5). Of the 21 respondents, 63% indicated that they were very confident; only 20% gave their initial confidence level a low rating.



*Figure 5. ZOW Educator Confidence Level in Speaking in Front of an Audience at the Start of their ZOW Training, with 1 being not at all confident and 10 being extremely confident, (n=21).*

To prepare new ZOW educators to conduct presentations on their own, there are three main steps they go through: shadowing more experienced ZOW educators, team-teaching with more experienced ZOW educators, and presenting with more experienced ZOW educators observing and offering commentary afterwards. All three steps were rated highly by survey respondents in their helpfulness in developing presentation

confidence (Figure 6), though there was a stronger response towards team-teaching in contributing to confidence gains. As one survey respondent commented, “Seeing other educators, out of zoo as well as in, let me see tricks that they used [in presentations]. I like to borrow their good ones after I see them.”



*Figure 6.* How Effective ZOW Educators Find the Training Steps in Increasing their Confidence in Speaking in Front of an Audience, with 1 being not helpful at all and 5 being extremely helpful, ( $n=21$ ).

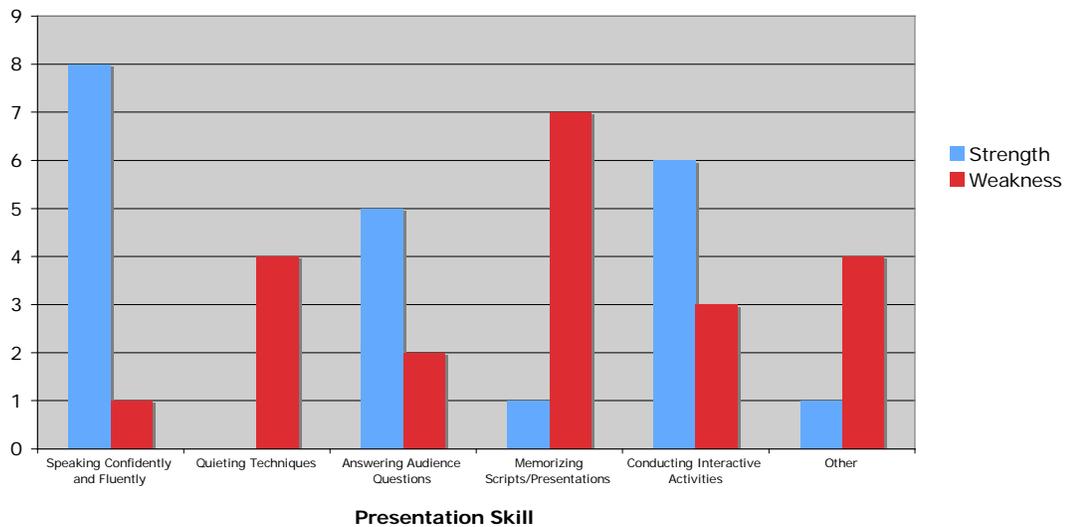
In the quiz there were three questions pertaining to presentation skills: one addressed quieting techniques, one addressed correcting an audience’s response, and the last addressed correcting a co-presenter while on program. For each of these questions, a clear majority of participants selected the correct answer (59% or more), however there were enough incorrect responses that presentation skills might be an area worth revisiting in a future evening’s refresher session.

One of the themes we like to stress to our educators is that we strive to set people up for success, be it our audience, our co-workers or ourselves. We want to create a positive learning environment where audience members feel comfortable asking

questions and are able to be excited about the animals they are meeting. To this end, it is our goals as educators to avoid being negative. When training new ZOW educators, we emphasize the positive and try to avoid using words or phrases like, “no,” “that’s wrong,” “that’s not right,” etc. When presenting, we try and acknowledge the effort of the answer a child might offer, no matter how off base it might be, without putting down the child. This is very hard to do. People are generally in the habit of correcting others by saying, “no, that’s wrong.” Sometimes it seems so commonplace that we as presenters do not even realize we say, “no,” so it is important for staff to be aware of how they respond to questions or answers. Some of the participants might have chosen answers for those three questions that seemed harmless but contained those negative words. Once past the training stage, it is difficult to monitor an employee’s use of these words, as there is no one else watching them with a critical eye and ear.

Aside from the above three components, many respondents also commented that practice and repetition really helped them gain confidence with their presentations. As well, having a better grasp on the information they needed to teach helped increase their confidence. As one survey respondent put it, “My lack of confidence was mostly due to my lack of knowledge. Once all of the animal facts began to stick, I began to feel more at ease presenting.” Similarly, another person said that confidence increased through “reviewing education materials with other ZOW educators. Confidence in my knowledge of the materials translated to confidence in presenting them.” Additionally, many respondents commented on the value of seeing client feedback, saying that it lets them know what they need to work on and whether or not they are doing a good job.

After completing their training, of the many components that goes into making a presentation successful, 38% of the survey respondents said that their greatest area of strength is in speaking confidently and fluently while presenting, followed by conducting interactive activities with the audience (29%) (Figure 7). The area that the most number of respondents cited as their weakest area was in memorizing scripts (33%), however several survey respondents said that they preferred to have an outline of a program rather than a full script, as it allowed for greater flexibility. One respondent commented that, “I tend not to memorize a script word for word. I get the important points out of it and then tweak it to make it my own.” No respondent said that they were strongest at quieting techniques, while 19% said it was their weakest area. One respondent said, “While I would say that I am a very strong presenter, I find that the only thing that flusters me is when I can't get the kids to settle down, even after repeated use of quieting techniques.” Another mentioned, “Some of the quieting techniques I have learned don't work for me and don't seem natural. I would love to learn some new techniques.”

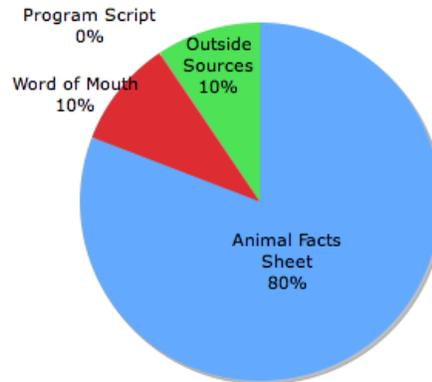


*Figure 7.* The Greatest Areas of Strength and Weakness in Presentations for ZOW educators, ( $n=21$ ).

### Knowledge Acquisition

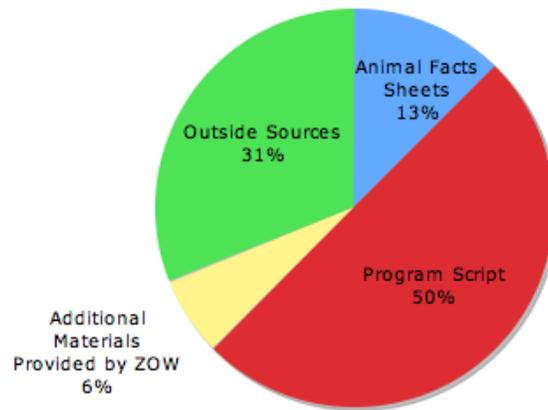
By far, the area that the survey respondents considered the weakest in their ZOW training was the knowledge acquisition portion, though this was the portion quiz respondents had the best grasp of. As shown in Figure 1, 72% of the 21 respondents said that knowledge acquisition was the weakest area of training, largely because it is the area that the individual educators are responsible for on their own. One survey respondent said, “This is mostly the responsibility of the individual educators, to read the animal facts sheets, to read the scripts. There really isn't much training done in this area,” a sentiment that was echoed by many of the other respondents.

There are two main areas of information that the ZOW educator needs to be familiar with: the program subject and specific animal information. With regards to the specific animal information, 81% of survey respondents said that their main source of information about the animals was the animal facts sheets that were distributed during their training (Figure 8). These sheets, which are compiled by the Children’s Zoo managers, contain an overview of each animal species brought out on program, touching on such subjects as the species’ natural history, diet, habitat, behavior, breeding behavior, longevity, predators and conservation status in the wild. The outside sources of information included searching the Internet and looking through books owned by the educators. The majority of survey respondents, 76%, said that their selected source of information provided them with enough information that they felt confident teaching other people about the animal.



*Figure 8.* Main Sources of Information Used by ZOW Educators to Learn about the Animals Presented on Program, ( $n=21$ ).

For information pertaining to a program's specific subject matter, there was a more varied range of materials employed (Figure 9). For those ZOW educators who taught classes with specific subjects – beyond the general show used for birthday parties and introductory school programs – 50% relied on their program scripts for information, while 31% used outside sources to get comfortable with the topic. These outside sources were mostly from doing research on the Internet, though some used notes and textbooks from college to prepare. Only 48% of respondents, however, said that their selected source provided enough information about the topic that they feel confident teaching others about the subject. Many survey respondents said that the program scripts gave a good overview, but could be too general and would need to be supplemented with additional research.



*Figure 9.* Main Sources of Information Used by ZOW Educators to Learn about a Program's Specific Subject Matter, ( $n=16$ ).

After their initial ZOW training, 62% of survey respondents said that they felt that their knowledge gained during their training would enable them to present an animal in front of an audience, and the vast majority of respondents (95%) said that they are generally confident that they can answer most questions posed by an audience.

Most quiz participants showed a sound grasp of the animal information that we relate to our audiences. The only quiz question everyone answered correctly discussed why parrots do not make the best pets. This is a topic we need to be well versed on for two main reasons: first, the pet trade is an important conservation issues, as macaws in the wild are threatened by people capturing them to sell; second, many of our audience members ask if the animal we show would be a good animal to get as a pet. The other two questions that pertained specifically to animal information everyone but one person selected the correct answer to. The first of these questions was about the four characteristics ZOW educators use to distinguish mammals from other types of animals: hair, earflaps, live birth and the young drink milk. One person selected the answer that distinguished mammals as being warm-blooded (instead of earflaps) which is correct, all

mammals are warm-blooded, but that trait does not distinguish them from animals such as birds. The four distinguishing characteristics of mammals is something that every ZOW educator would use in their initial programs, be it a ZOW birthday party or a Little Zoo On Wheels class. The other question addressed the eating habits of snakes. Everyone answered correctly that “Justin Timbersnake,” the ball python, gets fed once a week. One person, however, selected the answer that was not technically accurate. Since reptiles are cold-blooded, they digest their food and process the nutrients more slowly than birds and mammals, and that is how ZOW educators are trained to answer questions about how often our snakes eat.

The other areas of knowledge that the ZOW educators need to well-versed on is conservation issues, especially as AZA accredited zoological institutions have made conservation education the driving mission of every living collections display (Fraser & Sickler, 2006). Zoo On Wheels educators have to be able to articulate both larger conservation issues that face our world and also the specific programs that the Philadelphia Zoo supports. When asked how prepared they consider themselves to be able to answer questions about conservation issues like climate change, habitat loss and endangered species, 43% of survey respondents indicated that they felt extremely prepared, with 29% saying they were pretty strongly prepared. Twenty-eight percent, however, indicated that they felt less than confident to discuss these subjects with an audience. This is problematic because aquariums and zoos and their employees are viewed as trusted sources of conservation issues by the public, who also expects these institutions to communicate solutions to these environmental issues (Searles & Sloan, 2010). Additionally, while most quiz respondents had a general grasp of the Philadelphia

Zoo's mission, none could articulate it completely when asked. The mission of the Philadelphia Zoo is to, "Advance discovery, understanding and stewardship of the natural world through compelling exhibition and interpretation of living animals and plants," (Philadelphia Zoo, 2011) and being able to communicate this to people while on program contributes to the general understanding of the Philadelphia Zoo's role as a conservation organization.

All survey respondents said that they are familiar with conservation projects that the Philadelphia Zoo is currently involved in, though to varying degrees. One respondent commented that, "Even though I have been told about these programs, it has not been drilled into me. It's only been in the last few years that the zoo has gotten more serious about presenting conservation issues as well as education. When I started [with ZOW], it was not pressed upon us as much, at a time when I was really cramming all of the presenting information into my head." Several respondents requested more information about the Philadelphia Zoo's conservation programs, saying that while they were familiar with some of them, they were not ready to teach others about the programs.

## INTERPRETATION AND CONCLUSION

After going over the responses to the employee survey, employee quiz and the employee and manager interviews, these are the aspects of our new employee training that I feel are the strongest, and here are my recommendations for improvement (Table 2).

Table 2  
*ZOW Training Procedures Strengths and Recommendations for Improvement*

<u>Animal Handling Training</u>
<p>Current Strengths:</p> <ul style="list-style-type: none"> <li>• Most defined area of new employee training</li> <li>• Clear-cut protocols to follow in every aspect of animal handling</li> <li>• Checklists for new employees to help them review procedures</li> <li>• Photos of proper packing procedures</li> </ul>
<p>Recommendations for Training:</p> <ul style="list-style-type: none"> <li>• Limit number of people being trained at once <ul style="list-style-type: none"> <li>○ Addresses individual employees' considerations and questions</li> <li>○ Increases the amount of hands-on time new employees have with animals</li> <li>○ Decreases anxiety as new employees can focus on the animals without having to worry about their peers watching them</li> </ul> </li> <li>• Limit number of animals being trained in a single session <ul style="list-style-type: none"> <li>○ Green/Yellow animal training can be overwhelming because of the number of species</li> <li>○ Difficult for new employees to remember all of the necessary procedures and considerations for every species</li> </ul> </li> <li>• Reinstate yearly animal handling refreshers <ul style="list-style-type: none"> <li>○ Insures that all animal handlers are following the correct procedures</li> <li>○ Gives managers the chance to assess handler's confidence with animals</li> </ul> </li> <li>• Update animal handling DVDs <ul style="list-style-type: none"> <li>○ Allows new employees to have a visual reference of the correct animal handling procedures</li> <li>○ Update DVD to include handling procedures for Purple, Red and Black level animals – possibly on a separate disc</li> </ul> </li> </ul>
<u>Presentation Preparation</u>
<p>Current Strengths:</p> <ul style="list-style-type: none"> <li>• Shadowing and team-teaching with more experienced ZOW educators</li> <li>• Scripts and outlines to demonstrate the flow of the presentations</li> </ul>
<p>Recommendations for Training:</p> <ul style="list-style-type: none"> <li>• Use Children's Zoo Shows for new employee presentation practice <ul style="list-style-type: none"> <li>○ Allows ZOW management to observe presentation skills and give feedback during and after the team-teaching period</li> <li>○ Shorter shows will allow new employees to get comfortable presenting in front of an audience with an animal in hand</li> </ul> </li> <li>• Develop rubric for observation phase of presentation training <ul style="list-style-type: none"> <li>○ Allows observer to have defined talking points to debrief the new employee after their solo presentation</li> <li>○ Gives the new employee defined focus areas to concentrate on as they start</li> </ul> </li> <li>• Create video examples of proper presentation techniques <ul style="list-style-type: none"> <li>○ Allows employees to see presentation techniques in action</li> </ul> </li> </ul>

<ul style="list-style-type: none"> <li>○ Allows employees to be exposed to a wider range of techniques</li> <li>● Give employees regular access to their client feedback, both positive and negative <ul style="list-style-type: none"> <li>○ Allows employees to see their strengths and weaknesses</li> <li>○ Allows managers to give employees feedback on how to improve</li> </ul> </li> <li>● Use evening trainings to practice presentation techniques <ul style="list-style-type: none"> <li>○ Can be used to practice many different techniques such as quieting techniques, improvisational skills, positive responses, etc.</li> <li>○ Presenting in front of peers gives employees the opportunity to receive feedback about their technique</li> <li>○ Can be used to practice audience question and answer techniques</li> <li>○ Gives the employee the opportunity to find the techniques that work best for them before being in front of a class</li> </ul> </li> </ul>
<u>Knowledge Acquisition</u>
<p>Current Strengths:</p> <ul style="list-style-type: none"> <li>● Animal Facts Sheets</li> <li>● Program Scripts and Outlines</li> </ul>
<p>Recommendations for Training:</p> <ul style="list-style-type: none"> <li>● Mock presentations with ZOW managers to demonstrate knowledge acquisition <ul style="list-style-type: none"> <li>○ Allows the employee to go over their information prior to being in front of a class</li> <li>○ Allows the managers to assess if the proper information is being taught</li> </ul> </li> <li>● Periodic quizzes/assessments to review necessary knowledge <ul style="list-style-type: none"> <li>○ Allows managers to correct any misconceptions</li> <li>○ Holds the employees accountable for the knowledge they are responsible for teaching</li> </ul> </li> <li>● Create a database of additional recommended sources to supplement the scripts <ul style="list-style-type: none"> <li>○ Gives the employees more information for their program</li> <li>○ Helps to prepare them for additional questions they might receive while on program</li> </ul> </li> <li>● Create a database or script of environmental issues and conservation programs that the Philadelphia Zoo is involved with <ul style="list-style-type: none"> <li>○ Prepares the ZOW team to discuss such issues, especially as they are expected to be able to talk about them</li> <li>○ Increases ZOW employees' confidence in being a source of information on conservation issues</li> </ul> </li> </ul>

In the past several years, a great effort has been made to streamline and clarify the training procedures employed by ZOW. This has largely been in the form of putting more procedures down in writing, with the development and continuous revision of the training manual that is given to all employees at the start of their training. This manual includes information on safety procedures – both in-zoo and while the educator is out in the field –

and office procedures, and has basic guidelines for presentation training. As well, checklists have been developed that allows both the new employee and the training staff to monitor the new employee's progress. As the new employee completes each item on their checklist, the person doing the training will indicate whether the new employee has observed, has talked through, or has performed the task on their own. Once the new employee has completed all stages, then they are considered cleared and trained.

This procedure has helped to clarify at which point a new employee is considered fully trained. Several ZOW employees interviewed said that they felt like they were past the trainee period when they were routinely on their own for programs, or else started going out on program with newer ZOW employees who needed guidance. One person interviewed said that the "Signal for [being fully trained] was doing programs on my own, or doing programs with people who were newer than I was." Another employee said they could tell they were past the trainee period because, "I didn't have to look at the scripts or the manual to get ready for a program." These indications, however, came from the employees themselves, and not necessarily from their managers.

As discussed, the animal handling component of ZOW training is the most defined area, with clear-cut guidelines and standards. For ZOW employees, their progression through the various levels of animal handling is determined by need, depending on which programs they teach, how often they go out on program, as well as by their own comfort level working with the animals. The decision to train an employee on the next level of animal handling is jointly made by the ZOW manager and the Children's Zoo curator. Training in more advanced levels are limited to one or two people at a time, thereby ensuring comfort and a thorough teaching of a much smaller

number of species. Initial animal training could benefit from a similar handling; the only negative feedback about animal handling training from many survey respondents was that their hands-on time with the animals was limited and especially with the large number of animals to get through it was hard to internalize all the information at once. Animal handling checklists help employees know *what* to do, but not *how* it is done for each separate species. Though there are large time constraints to the trainer's time, perhaps we might want to consider breaking up the animal handling training sessions into multiple, shorter segments that would allow the new employees to really get familiar with the animals they are learning. We do want to teach everyone the same way to make sure that animal handling procedures are consistent, but does that mean we should try and train all our new employees the same way? The answer to that question is a reasonable no. As clearly indicated by the wide range of backgrounds exhibited by the ZOW educators who participated in the study, everyone brings their own unique perspective to the job. Some have extensive amounts of animal handling experience, and while it is necessary to train them on the fundamentals of how the Philadelphia Zoo approaches animal handling, those new employees might require less time to familiarize themselves with the animal handling techniques. Then, regardless of how much animal handling background one has, some people will always be more comfortable with some animals than with others and will require more time, more training, before they can get in front of an audience and teach fluently with proper animal handling technique.

Another alternative would be to hold animal handling refresher training more often. According to the curator of the Children's Zoo, refreshers are supposed to take place once a year for all staff, though due to time constraints and staff availability, this is

not always enforced. The DVD that was put out by the Children's Zoo keepers on the proper methods of handling animals is very helpful for new employees, however some survey respondents reported that they never received the DVD. Along with ensuring that all new employees receive a copy of the DVD, it might also be time to update the DVD with new procedures and to take into account the new animals that have been added to the collection. In addition, only Green/Yellow Children Zoo animals are shown on the disc. Employees would also benefit from seeing the proper handling techniques for the higher levels.

Video can also be used to great affect for presentation training. Many of the interactive activities are taught best when seen and often employees get cleared to present on their own before seeing all of the different shows. Having video available would allow new employees to familiarize themselves with the presentations beyond what is discussed in the script. Additionally, having video of quieting techniques would also be very valuable, as employees would be able to see how best to react to overzealous audiences.

One of the best things we can do for our new employees with regards to presentation preparation is to give them lots of opportunity to practice in front of their peers or mentors. Eventually, they will be sent out on program on their own, in which case they will get lots of on the job practice, however without feedback they will not know if they are being as successful as they could be. Having more programs where educators go out with senior educators would allow them to grow more as presenters. However, due to the high volume of programs scheduled, this is rarely feasible. One option that has recently opened up is the Children's Zoo shows that ZOW is now responsible for. These shows occur three times a day during the peak season. The shows

are 20 minutes long and generally feature two animals. Since they are shorter these shows could be used to help train new employees, giving them a chance to present in front of an audience, use interactive activities and audience management techniques. Since these shows are on-site at the Philadelphia Zoo, the ZOW managers could easily come down to observe, and then provide feedback. Additionally, for the observed presentations both off-site and at the Children's Zoo, it would be very helpful for the observer to have a rubric to follow. This would provide the observer with a framework for their post-presentation debriefing, and allow their comments to be more focused. Currently, much of the debriefing takes the form of informal conversation on the way back from the program. Having a rubric would make these discussions more structured and therefore give the new employee a clear-cut understanding of how they are progressing.

An alternative to having observations done on programs is to let the ZOW educators see more of the client feedback for their programs. Occasionally, especially if the survey response is positive, excerpts from client feedback surveys will be distributed to the educators, either in a personal e-mail or else shared in the weekly e-mails. However, several participants commented on the benefits of seeing more of these feedback surveys, regardless of the tone. One survey respondent commented that, "Getting positive feedback from the clients boosted my confidence that I was actually doing a good job. Then I could relax and have fun with it, which also helped me get better [with my presentations]." Another participant who had been able to see the client feedback surveys said, that the surveys helped with gaining confidence as, "It helped me to know how my audience felt after my show." Seeing the client feedback would be especially helpful for continuing presentation skill development.

In the past year, one training tool that the ZOW department has started to utilize more has been evening trainings. Once every couple of months, a two-hour training session would be scheduled for all the ZOW educators. At these training sessions we would go over new programming, recent problem areas, have presentation practices, and have discussions about scenarios that might come up during programs. These evening sessions have been very well received and have benefited both new and veteran employees. One thing we have started to do with our evening trainings is to give our employees an opportunity to practice both presentation skills and to go over their knowledge. A great way we have found to do this is to have people play theatre improvisational games that are animal themed. For example, at an evening training, I organized a “dating show” game, where one “contestant” had to identify what animal each of the three prospective “dates” was pretending to be. Each “date” was given a piece of paper with an animal from our program collection on it, and they had to talk to the “contestant” from that animal’s perspective, answering questions about their favorite foods or habitat, without blatantly saying which animal they were. This allows them to have more opportunity being spontaneous, reacting to novel situations, go over their animal knowledge and, as they were doing this game in front of their peers, practice being silly in front of an audience. Making these evening trainings a regular occurrence would allow ZOW managers to connect more with employees and make sure that everyone is receiving the same message.

Currently, the way information is distributed to all of the ZOW educators is through the weekly updates that are sent out along with the calendar. Updates to the program animal collection, general Philadelphia Zoo information, as well as changes to

ZOW procedure are all sent out in these e-mails, which the employees are all supposed to read and acknowledge. However, as seen by the response to the quiz question, not everyone realizes that they are responsible for the information in those e-mails. Having periodic all ZOW training sessions would give the managers the opportunity to tell people important information in person to ensure they get it, as well as reinforce important procedures. Another method of reinforcing the information sent out in the weekly updates would be to have the most recent weekly update posted in the ZOW office. This way when employees come in to start their shift, they would be reminded of what was most recently sent out in the e-mail, especially with regards to new animal procedural changes. Also helpful would be to have an archive of past weekly updates either in the office or online, so that employees would be able to see an update they might have missed.

As far as knowledge acquisition goes, it will always be the employees' responsibility to be prepared for the classes they are to teach. The managers can only do so much to prepare the employees, by providing detailed scripts and animal information, but it falls on the employee to read and internalize all of that information. We can provide additional resources, building up the ZOW library so that if educators want to do further research they have reliable sources at their disposal. Perhaps in the training process, we can do more to ensure they are reading, for example have them do mock presentations so we can see how much information they have learned, and make sure that they are presenting correct information. Periodically, we could send out mini-quizzes with the weekly updates to prompt review. This should be presented as friendly assessments, not at all punitive, but used as measures of an employee's grasp of the material they should

be familiar with. Additionally, with the amount that employees are using the Internet and social media, another training tool that is at our disposal is online classes or training. In a report on the future of AZA employees' professional development, it was reported that a quarter of 1,200 employees of nonprofits, educational institutions, and governmental agencies already participate frequently in web-based meetings and trainings (Vernon, 2009). By using programs like GoogleDocs, the ZOW management team could easily come up with quizzes, distribute readings, or even share videos that could help bolster ZOW employee's knowledge base.

## VALUE

The experience of developing and administering this capstone project has had a significant effect on the way I approach training new ZOW employees. When I was developing this capstone project, I started out as one of the regular part-time educators. I was interested in the training process because I had recently undergone my own training, knew what worked really well and what I had found frustrating. Over the course of the past two years, I was promoted to lead educator, a new position created to help with administrative/office work, program development, to cover more programs and to assist with training new employees. Often I would have new seasonal employees shadowing me on program, or else I would be team-teaching, and with my capstone project in mind, I was a lot more cognizant of how I was teaching my co-worker. I made a much more concerted effort to communicate EVERYTHING, regardless of how obvious it might seem.

With regards to animal handling, I kept in mind that practice is the key to learning. I am not the person responsible for training animal handling, but when the new educator goes out on program with me, either to shadow or team-teach, this often is the first or second time he or she is going on program after their initial animal handling training. We have a strict time limit in which to pack our animals up for program, and though new employees may not have developed their rhythm and may not be time efficient with their packing, I would make a point of having them do a significant part of the packing and have them move the animal in and out of its enclosure and carrier. This way, what they have learned in their animal handling training is reinforced in their minds. I often would have them talk me through the process so I would know that they knew what they were doing, or so that I could make sure they knew the correct process. While on program, I would have them hold the animals while I talked about them, thereby giving them practice handling the animal in front of an audience. This would help them develop the necessary comfort with the animals, making it second nature so that when it came time for them to present, they could concentrate on the material knowing that they were in control of the animal without having to overtly focus on it.

No matter how much prior experience one has with presenting, getting up in front of an audience with new material – and a live animal! – always takes a bit of adjustment. Knowing this, when I went out on program with new employees, I would do my best to make sure they were comfortable. I would make a concentrated effort to move at their pace while encouraging growth. Following the system already in place, I would always have brand new employees shadow me, doing nothing but observing during my first show. On a day when we had multiple shows scheduled, I would be able to slowly

integrate the new educator into the classes, having them watch the first one, then have them help with interactive components and holding an animal, and hopefully have them present the animal portion of the show. I found that during team-teaching experiences, giving new employees small portions of the show to present allowed them to gain comfort without being overwhelming. Always I would follow each show, whether they were observing or taking part presenting, with a conversation with the educator about what went well, what could be worked on, their impressions of the program itself, and of course answering any questions they might have. Being an outreach department, we had a lot of debriefing time built into our schedule with the drive to and from our destination: instead of doing nothing but listening to the radio or chatting, I would make a point of using that time to prepare my co-worker for the program ahead and then discuss it afterwards. As well, I would make sure that I discussed tricks and techniques that I had discovered worked well for presentations. Instead of hoping they picked up my quieting techniques while they watched, or took note of comments that the audience responded well to – for example, pointing out that birds go to the bathroom 15 times a day – I would tell it to them, so they had it in their tool box to start.

Knowing that knowledge acquisition is the least addressed part of our training, while on program with a new employee I would make sure to discuss our presentation's subject with them while en route to our destination. I would go over the script with them, answer any questions they might have about the facts we would be presenting, and make sure to point out significant topics or facts that might not be noticeable just in reading through the script. I would have the new employee review the animal facts sheets prior to our arrival on site, to make sure that the information about the animals was fresh in their

mind. I would suggest additional readings if necessary, and as lead educator, when I was not on program I would check our subject specific program boxes to make sure that they contained the necessary photos and props needed to make the program successful.

Another aspect that has been affected by my work on my capstone project has been how I approach program development. In our ZOW core team meetings, we come up with new classes, new interactive activities for our presentations, and ways to improve existing programming. For example, in the past year we have completely overhauled our ZOW Birthday Party, making it much more environmentally friendly and focused. This meant that our entire staff had to be re-trained on our birthday parties, to take into account the new script, crafts and activities. Knowing that we would be most successful if we had our employees see all aspects of the new party rather than just read a document e-mailed to them, we held an evening training session where we essentially threw our staff a birthday party. This way those who were able to attend were able to experience the party and know what they were to do when on program. We have found that people who attended the evening training were much more prepared and comfortable with the new format than those who had not. For these trainings I have most often been put in charge of organizing the theatre games, which allows our employees to practice presentation skills and go over their animal knowledge. I would tie those games to the programs we were discussing as well as figure out how best to make the employees display their knowledge.

Moving on from this capstone project, it is my goal that the assessment of the training procedures that I have done can lead to more effective training practices. I would like to create a database of resources that can be distributed to the educators so that they

know where to look for more information about the animals or about the subjects they are to teach. By distributing these sources, we the ZOW core team would know that the educators are using reliable and valid information, which would reduce the chance that they would pass on false information to their classes. With regards to presentation skills, I would like to compile a collection of quieting techniques that can be reviewed with new employees right at the start of their training. For many people, audience management is difficult to learn and knowing ahead of time what tools they can use can greatly enhance their learning experience. Similarly, I think our employees would greatly benefit from being trained how to avoid negative responses. Perhaps one of our evening trainings can focus on avoiding the words “not,” “no,” “wrong,” “incorrect,” and other similar words to encourage the habit of only having positive interactions with students. I also think that having video examples of presentation techniques would be very useful to pass on to new employees. This way they can see what they should be doing when in front of an audience.

Sadly for me, at the end of June 2011 I will be leaving the Philadelphia Zoo as my family is moving from Philadelphia. It is my goal that the research done for this project will serve to improve the training procedures already in place for ZOW employees and enhance future training in order to produce comfortable and confident ZOW educators.

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APPENDICES

APPENDIX A

SURVEY FOR PHILADELPHIA ZOO – ZOO ON WHEELS EDUCATORS

Before starting the survey, please read the following:

**You must be 18 years or older** to participate in this study. If you are not, please exit the survey by closing the window.

This questionnaire consists of 38 questions total divided into five sections, and should only take between 10 and 20 minutes to complete.

This survey is part of a research study is being conducted by a graduate student of Montana State University and is being carried out independently of the Philadelphia Zoo Education Department. Your decision to participate or not will not affect your current or future relations with the Philadelphia Zoo.

**Participation in this study is strictly voluntary. You can leave the survey at any point by simply closing the window.** Please be as honest as possible when answering the questions. If you do not know the answer to the question, please indicate accordingly. Your answers will not be recorded until you press the “submit” button at the end of the survey, at which point they will only be accessed by members of the research team at Montana State University.

The results of this survey will be used to gain a clearer understanding of the efficacy of the training protocol used by the Zoo on Wheels department at the Philadelphia Zoo. By participating in this study, you could be helping the Zoo on Wheels department more effectively train future staff members, thus perpetuating and enhancing the caliber of the department. This study poses no additional risks to you other than those experienced in everyday life.

**All answers are completely anonymous. No identifiers will be used in this study to link your answers to you.**

After reading the above, if you have any questions please e-mail me, the researcher: Andrea Gissing Yordán ([agissing@gmail.com](mailto:agissing@gmail.com)). If you have any concerns and would like to reach someone other than the researcher, please contact Dr. Eric Brunsell ([eric.brunsell@ecat.montana.edu](mailto:eric.brunsell@ecat.montana.edu)).

By clicking the “Submit” button at the end of the survey, you are acknowledging that you are 18 years or older and have freely chosen to participate in this survey after reading this introduction. You also agree to give the researcher permission to use and disclose the anonymous results. The results from this survey will be used in a Master’s project and may potentially be used as an article in a peer-reviewed educational journal.

Thank you very much for you participation!

Sincerely yours,  
Andrea Gissing Yordán  
Montana State University

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**Part 1 – General Overview**

1. How many years have you have worked with Zoo on Wheels?
2. In what year were you INITIALLY trained for Zoo on Wheels?
3. Have you had any refresher training since your initial training? (Please answer Yes/No for each of the following categories. If Yes, please explain):
  - a. Animal handling
  - b. Presentation skills
  - c. Teaching material/information
4. What was the first area you worked in at the Philadelphia Zoo? (Please select ONE):
  - a. Zoo on Wheels
  - b. In-Zoo Camps
  - c. In-Zoo Workshops
  - d. Public Programs
  - e. Night Flight
  - f. Junior Zoo Apprentice Program
  - g. Children’s Zoo intern/volunteer
  - h. Other (please specify)
5. Do you consider Zoo on Wheels your “home base” at the Philadelphia Zoo? (Y/N)
6. Please indicate which types of programs you mainly get assigned (Please select ALL that apply):
  - a. ZOWB
  - b. Little ZOW
  - c. Big ZOW
  - d. Booths
  - e. ZooFiestas
7. On average, approximately how many programs do you go on per month? (Please select ONE from the following.)
  - a. 1-2
  - b. 3-4
  - c. 5-6
  - d. 7-8
  - e. 9-10
  - f. 11<

## Part 2 – Animal Handling

1. Please indicate your highest level of animal handling clearance (Please select ONE):
  - a. Green/Yellow
  - b. Purple
  - c. Red
  - d. Black – Macaws
  - e. Black – All
  
2. Prior to starting with Zoo on Wheels, what sort of animal handling experience did you have? (Please select ALL that apply)
  - a. None
  - b. Household pets
  - c. Volunteer (at a zoo, aquarium, museum, animal shelter, veterinary clinic, etc.)
  - d. Work (at a zoo, aquarium, museum, animal shelter, veterinary clinic, etc.)
  - e. Other (please specify)
  
3. Prior to starting with Zoo on Wheels, what types of animals have you worked with? (Please select ALL that apply)
  - a. None
  - b. Mammals - Small (tractable)
  - c. Mammals – Large (non-tractable, please specify)
  - d. Reptiles – Turtles
  - e. Reptiles – Snakes
  - f. Reptiles – Lizards
  - g. Reptiles - Crocodilians
  - h. Amphibians
  - i. Birds – Birds of prey
  - j. Birds – Parrots
  - k. Birds – Fowl
  - l. Birds – Other (please specify)
  - m. Invertebrates
  - n. Other (please specify)
  
4. Were you trained in green/yellow level animal handling by a Zoo on Wheels staff member? (Y/N)
  
5. Were you trained in purple level animal handling by a Zoo on Wheels staff member? (Y/N/Not applicable)
  
6. Were you trained in red level animal handling by a Zoo on Wheels staff member? (Y/N/Both/Not applicable – if both, please specify which animals were trained by

Zoo on Wheels staff)

7. Were you trained in black level animal handling by a Zoo on Wheels staff member? (Y/N/Both/Not applicable – if both, please specify which animals were trained by Zoo on Wheels staff)
8. For your initial green/yellow animal training sessions at the Philadelphia Zoo for working with program animals while out on Zoo on Wheels, were your training sessions one-on-one or did you have other people training with you? (Please select ONE for CZ and ONE for Shelly from the following)
  - a. CZ: One-on-one
  - b. CZ: With one other trainee
  - c. CZ: With two other trainees
  - d. CZ: With three or more other trainees
  - e. Shelly: One-on-one
  - f. Shelly: With one other trainee
  - g. Shelly: With two other trainees
  - h. Shelly: With three or more other trainees
9. After completing the initial green/yellow animals training sessions, did you feel confident that you could handle and present all of the animals covered in the training in front of an audience? (Please select ONE of the following and explain)
  - a. Yes
  - b. No
  - c. Somewhat
10. Did the number of people in your animal training sessions impact your confidence level when handling animals, upon completing the training? (Please select ONE of the following and explain)
  - a. Yes
  - b. No
  - c. Somewhat
11. Of the animals in the program animal collection, which animals were/are you most hesitant to work with and why?
12. Of the animals in the program animal collection, which animals were/are you most excited to work with and why?

### **Part 3 – Presentation Preparation**

1. Prior to starting with Zoo on Wheels, what sort of teaching experience did you have? (Please select ALL that apply)
  - a. None
  - b. In-school teaching (please specify grade or age range)

- c. Interpretation (ex. as a docent or as a interpreter at a museum/zoo/aquarium)
  - d. Outreach education
  - e. Other (please specify)
2. Prior to starting with Zoo on Wheels, what sort of public speaking experience did you have? (Please select ALL that apply)
    - a. None
    - b. Theater/Music performance (amateur, in school, professionally)
    - c. Presentation/Narration in front of a large (>50 people) audience
    - d. Presentation/Narration in front of a small (<50 people) audience
    - e. Other (please specify)
  3. On a scale from 1 to 10, (with 1 being not at all confident and 10 being extremely confident), please rate your confidence level in speaking in front of an audience at the start of your Zoo on Wheels training.
  4. Please rate each of the following on a scale from 1 to 5 (with 1 being not helpful at all and 5 being extremely helpful) on how much they helped you gain confidence in speaking in front of an audience:
    - a. Shadowing other Zoo on Wheels educators
    - b. Team-teaching with other Zoo on Wheels educators
    - c. Presenting on your own with other Zoo on Wheels educators observing you and offering commentary afterwards
  5. As a presenter, what do you feel is your greatest area of strength? (Please select ONE and explain)
    - a. Speaking confidently and fluently
    - b. Quieting techniques
    - c. Answering audience questions
    - d. Memorizing scripts/presentation
    - e. Conducting interactive activities with the audience
    - f. Other (please specify)
  6. As a presenter, what do you feel is your greatest area of weakness? (Please select ONE and explain)
    - a. Speaking confidently and fluently
    - b. Quieting techniques
    - c. Answering audience questions
    - d. Memorizing scripts/presentation
    - e. Conducting interactive activities with the audience
    - f. Other (please specify)

**Part 4 – Knowledge Acquisition – How did you learn the information to teach in your presentations?**

1. What is your main source of information about the animals you present? (Please select ONE)
  - a. Animal Facts Sheet
  - b. Word of mouth – from keepers, from other educators,
  - c. Program script
  - d. Outside sources (ex. Books, Internet, etc. Please specify)
2. Does your selected source provide you with enough information on the animal that you feel confident teaching other people about the animal? (Y/N, please explain).
3. For those who teach classes with specific topics (beyond ZOWB shows and WWAZ) what is your main source of information for the subject being taught (ex. habitat specific courses, classes on adaptations, classes addressing conservation issues, etc.)?
  - a. Animal Facts Sheet
  - b. Program Script
  - c. Additional materials provided by ZOW heads
  - d. Outside sources (ex. Books, Internet, etc.) – Please specify
  - e. N/A
4. Does your selected source provide you with enough information about the topic that you feel confident teaching others about that subject? (Y/N, please explain)
5. Generally, are you confident that you can answer most questions posed by your audience? (Please rate on a scale from 1 to 5, with 1 being not confident at all and 5 being extremely confident.)
6. After going through your INITIAL Zoo on Wheels training, do you feel your knowledge gained during the training would enable you to present an animal in front of an audience? (Y/N and explain)
7. Please describe the Philadelphia Zoo's conservation mission. Is this something you feel confident discussing in your presentations?
8. Can you suggest any additional resources that you would like to be provided to you that would make you more confident in your presentation? (Please describe).

**Part 5 – Zoo on Wheels Training – Synthesizing animal handling training, presentation preparation and knowledge acquisition**

1. Going into the first program you did after you completed your training, how ready did you feel to present animals on your own? (Please rate on a scale from 1 to 10, with 1 being not at all prepared and 10 being extremely prepared.)

2. In your experience, of the three main areas of training for new Zoo on Wheels staff which did you find to be the strongest? (Please select ONE and explain)
  - a. Animal handling training
  - b. Presentation preparation
  - c. Knowledge Acquisition
  
3. In your experience, of the three main areas of training for new Zoo on Wheels staff, which did you find to be the weakest? (Please select ONE and explain)
  - a. Animal handling training
  - b. Presentation preparation
  - c. Knowledge Acquisition
  
4. If you were one day handed a script and asked to present a class you had never done before, please rate on a scale from 1 to 10 (with 1 being not confident at all and 10 being extremely confident) how confident you would be in your ability to successfully present the program.
  
5. Besides your initial training, what other continuing training have you received? (Please list ALL that come to mind).

APPENDIX B

ZOO ON WHEELS KNOWLEDGE QUIZ

This is an anonymous, short, 15-question quiz to gauge retention from your Zoo On Wheels (ZOW) training and from your regular work with ZOW. Please answer every question from MEMORY to the best of your ability.

Please enter the month and the year of your most recent ZOW program \_\_\_\_\_.

1. Which of the following items must be signed out before you take it on program?
  - a. GPS
  - b. General Use Box/Booth Box/ZOWB Box
  - c. Animal Artifact
  - d. Speaker
  - e. All of the above
  
2. What are the four characteristics that generally distinguish a mammal from all other animals and are appropriate for all ages?
  - a. Hair, ear flaps, live birth, young drink milk
  - b. Hair, warm-blooded, live birth, young drink milk
  - c. Live birth, breathe air, hair, ear flaps
  - d. Warm-blooded, young drink milk, breathe air, ear flaps
  
3. When do you have to bring out a carrier cover for your chinchilla?
  - a. When it is cooler than 70 degrees
  - b. When it is cooler than 50 degrees
  - c. When it is very windy out
  - d. When it is raining
  
4. You are out on program and Cooper, the ring-necked dove, flew off your hand while you were presenting him. You get back to the zoo after the entire Children's Zoo staff has left. Which extension do you leave a message on to report Cooper's flight?
  - a. Ext. 5353
  - b. Ext. 5240
  - c. Ext. 3302
  - d. Ext. 5550
  
5. How many times a week does Justin Timbersnake, the ball python, get fed and why?
  - a. Three square meals a day. Anything less would be uncivilized.
  - b. Two to four times a week. In the wild, animals do not always eat every day.
  - c. Once a week. Since reptiles are cold-blooded, they digest their food and process the nutrients more slowly than birds and mammals and so do not need to eat as often.

- d. Once a week. They get a big meal that will last them the entire rest of the week.
6. You are doing the animal show portion of a birthday party and the audience is being too loud. Of the following choices, what would be the best quieting techniques to use to get their attention?
    - a. Say, “If you can hear me put your hands on your head, if you can hear me clap twice, if you can hear me clap three times...”
    - b. Say, “You guys are being too rowdy. If you don’t quiet down right now I can’t let you pet the animals.”
    - c. Shout, “QUIET!!!!”
    - d. Say, “I’m just going to wait until you guys calm down before I continue,” and pause your presentation until they settle.
    - e. Choices A, B and D
    - f. Choices A and D
  7. What reasons might you give an audience about why parrots might not make the best pet for everyone?
    - a. Because dogs are so much cooler than birds.
    - b. Because parrots can live a long time – are you prepared to have a pet for 30+ years?
    - c. Because parrots are very social animals and require constant companionship or else they can get depressed.
    - d. Because they can be really expensive, both to buy and to take care of.
    - e. Everything except A.
  8. At what point do you have to fill up the gas tank in the outreach vehicles?
    - a. After you’ve driven it – it’s just polite to leave a full tank for the next driver.
    - b. Once the gas light has turned on – at this point the tank is soon going to be running on empty.
    - c. When you get back and there’s half a tank or less – this way if someone after you has a long trip, you can make sure that there will be enough gas.
    - d. Only once the gas gauge has fallen below half – if the needle is at half, there’s more than enough gas to go anywhere ZOW would go.
  9. You are unpacking after program and discover that Pirate, the eastern box turtle, has made a huge, smelly mess in his cooler. After removing all of the debris, what is the correct procedure for cleaning up the carrier after him?
    - a. Spray with pink soap, wipe dry with paper towels, spray with water, wipe dry with paper towels.
    - b. Spray with green soap, wipe dry with paper towels, spray with water, wipe dry with paper towels.
    - c. Spray with pink soap, wait five minutes, wipe dry with paper towels, spray with water, wipe dry with paper towels.

- d. Spray with green soap, wait five minutes, wipe dry with paper towels, spray with water, wipe dry with paper towels.
  - e. Spray first with green soap, wipe dry with paper towels, spray with pink soap, wipe dry with paper towels, spray with water, wipe dry with paper towels.
10. You have received an e-mail from Erin. After reading the e-mail, what is the proper response?
- a. Write back only if you have questions about your schedule.
  - b. Ignore it.
  - c. Write a quick note back to let her know you got the e-mail.
  - d. Write back only if she has asked a question that the staff needs to answer.
11. Why do we wear gloves when we present Emily the ferret?
- a. Because she has really sharp teeth and claws – she is a predator after all.
  - b. Because wearing gloves while you present makes you look more professional.
  - c. Because our animals are animal ambassadors, not pets.
  - d. Because she is so squirmy, she is easier to hold on to if you wear gloves.
  - e. A and C
  - f. A and B
  - g. All of the above
12. During your presentation, you ask the audience what Sonic, the African pygmy hedgehog’s spines might be used for. A child responds, “to shoot at enemies.” How do you correct him or her?
- a. Say, “No, that’s not right. Who else has a guess?”
  - b. Say, “That’s a great idea, because wouldn’t it be scary if an animal could shoot their quills? But he actually does something different with them...”
  - c. Say, “No, they don’t shoot their spines, but what they really do is...”
  - d. Say, “Sometimes people think that, but actually that’s not what they do. They...”
13. You are co-presenting at a birthday party when your teammate tells the audience that sugar gliders can fly. What is the best thing for you to do?
- a. Say, “Actually, that’s not the case. They look like they’re flying, but actually they are gliding or volplaning.”
  - b. Say, “It definitely looks like they’re flying, right? But do they flap their arms like birds flap their wings? In fact, what they are doing is jumping from a higher place and gliding as far as 150 feet to another spot!”
  - c. Say, “Wait a minute, that’s wrong. They can’t fly; only birds and bats can really fly. These guys do something different.”
  - d. A and B

14. It is the last week of March and you are returning from program. You get to the zoo, unpack your corn snake at Shelly and head to CZ to return the rest. Can you drive in the zoo?
- a. Only if there is nobody walking on the path – if you see people you have to park on the back road.
  - b. Only if it is after 5:00 p.m. – that is when the zoo closes during the peak season.
  - c. Only if it is after 5:00 p.m. – because the zoo closes at 4:30 p.m. and you have to wait half an hour after closing before driving through the zoo.
  - d. Only if it is after 5:30 p.m. – the zoo closes at 5:00 during peak season and you have to wait half an hour after closing before driving through the zoo.
15. In your own words, please describe the mission of the Philadelphia Zoo as you would describe it to an audience or guest.

APPENDIX C

INTERVIEW QUESTIONS FOR ZOO ON WHEELS EDUCATORS

Before the interview, participants will be read the statement that follows about what their participation and the research study entails:

**“Thank you for agreeing to participate in this research study. You will be asked five questions about the training process you went through in order to become an educator for the Philadelphia Zoo’s Zoo on Wheels Department. The purpose of the study is to evaluate Zoo on Wheel’s current training process, find its strengths and weaknesses and make recommendations on how the training program can be enhanced. Your participation in this interview is strictly voluntary. You are free to leave at any point of the interview or chose not to answer a question. All personal and identifying information will be kept confidential to only the researcher. This research study is in no way linked to the Philadelphia Zoo. By participating in this interview you grant the researcher permission to use your answers in the research study, without using any identifiers.**

**This interview should take 10 or 15 minutes at most to complete. If you have understood the information presented to you and still wish to participate, please say, “Yes”.**”

1. Please describe the Zoo on Wheels new employee training process. What were the steps you went through as a new employee?
2. Thinking back on your training when you first started out with Zoo on Wheels, how long after you started did you feel you were past the trainee period? How could you tell?
3. During your training, in each of the three components (animal handling, presentation preparation, knowledge acquisition) was there anything that you felt did not get covered or was not explained fully? Please describe. If so, what did you do to get clarification?
4. How do you keep current on your training? After your initial training was complete, are there other things you do yourself that keeps you presentation-ready? Is there anything that the Zoo on Wheels department does for you to help you keep current on your training? Please describe.
5. If you could give some advice to a new employee who is about to start their training, what would you tell them and why? What would you want them to know about their training that you would have wanted to know?

APPENDIX D

INTERVIEW QUESTIONS FOR ZOO ON WHEELS MANAGER/TRAINING STAFF

Before the interview, participants will be read the statement that follows about what their participation and the research study entails:

**“Thank you for agreeing to participate in this research study. You will be asked five questions about the training process you currently have in place for new employees of Zoo on Wheels. The purpose of the study is to evaluate Zoo on Wheel’s current training process, find its strengths and weaknesses and make recommendations on how the training program can be enhanced. Your participation in this interview is strictly voluntary. You are free to leave at any point of the interview or chose not to answer a question. All personal and identifying information will be kept confidential to only the researcher. This research study is in no way linked to the Philadelphia Zoo. By participating in this interview you grant the researcher permission to use your answers in the research study, without using any identifiers. This interview should take 10 or 15 minutes at most to complete. If you have understood the information presented to you and still wish to participate, please say, “Yes”.”**

1. How is the training procedure for new Zoo on Wheels employees developed? Who is involved with its development? How often is the training procedure revisited and revised? How do you currently evaluate the training process?
2. What do you focus on in the Zoo on Wheels staff training? What, if anything, do you consider to be the responsibility of the new employee in terms of preparing themselves for the position during their training?
3. How do you determine who gets trained for what programs? How do you determine who gets trained on what animals?
4. How has the training procedure for new Zoo on Wheels employees evolved in the last ten years and how are these changes communicated to people who were hired prior to the changes being put in place?
5. With so many staff members with different backgrounds, how do you maintain consistency amongst the educators in terms of what they teach and how they present the material? What about for people whose “home base” might not be in Zoo on Wheels? What types of continuing training do you utilize?

APPENDIX E

INTERVIEW QUESTIONS FOR PHILADELPHIA ZOO CHILDREN'S ZOO  
CURATOR

Before the interview, participants will be read the statement that follows about what their participation and the research study entails:

**“Thank you for agreeing to participate in this research study. You will be asked five questions about the training process new employees of Zoo on Wheels have to complete in order to be cleared in animal handling. The purpose of the study is to evaluate Zoo on Wheel’s current training process, find its strengths and weaknesses and make recommendations on how the training program can be enhanced. Your participation in this interview is strictly voluntary. You are free to leave at any point of the interview or chose not to answer a question. All personal and identifying information will be kept confidential to only the researcher. This research study is in no way linked to the Philadelphia Zoo. By participating in this interview you grant the researcher permission to use your answers in the research study, without using any identifiers.**

**This interview should take 10 or 15 minutes at most to complete. If you have understood the information presented to you and still wish to participate, please say, “Yes”.**”

1. How are the procedures for animal handling determined? How often are they reviewed and revised? How are these revisions communicated with the Zoo on Wheels staff?
2. Are the procedures consistent for all the departments that handle the animals? If someone started off in the Children’s Zoo as a volunteer then moved into Zoo on Wheels, would they have to be re-trained to handle the animals on program?
3. After being trained in animal handling, what does a Zoo on Wheels employee have to demonstrate in order to be cleared on handling and presenting the animal? Who is responsible for clearing the new employee?
4. How do you determine what category (green/yellow/purple/red/black) an animal is classified as? How do you determine which Zoo on Wheels employees are ready to be trained on the next level of animals?
5. Is there any required animal handling refresher training for Zoo on Wheels employees? If so, how often does it take place? If not, what do employees have to do to make sure they are current with their animal handling?

APPENDIX F

INTERVIEW QUESTIONS FOR PHILADELPHIA ZOO EDUCATION  
DEPARTMENT MANAGERS (NON-ZOO ON WHEELS)

Before the interview, participants will be read the statement that follows about what their participation and the research study entails:

**“Thank you for agreeing to participate in this research study. You will be asked five questions about the training process you have your new employees go through and how it compares to the training process in place for Zoo on Wheels. The purpose of the study is to evaluate Zoo on Wheel’s current training process, find its strengths and weaknesses and make recommendations on how the training program can be enhanced. Your participation in this interview is strictly voluntary. You are free to leave at any point of the interview or chose not to answer a question. All personal and identifying information will be kept confidential to only the researcher. This research study is in no way linked to the Philadelphia Zoo. By participating in this interview you grant the researcher permission to use your answers in the research study, without using any identifiers.**

**This interview should take 10 or 15 minutes at most to complete. If you have understood the information presented to you and still wish to participate, please say, “Yes”.**”

1. In your department, what are the procedures for training new employees?
2. Are these same procedures used if you have someone coming into your department who has already worked in a different education department at the Philadelphia Zoo?
3. Who is in charge of training new employees in animal handling? Are animal handling training procedures consistent with all the other education departments? Would you re-train someone in animal handling if they have already completed animal handling training in another department?
4. Are training procedures ever discussed amongst the managers or does each department develop their own procedures for training new employees?
5. How often to you review and revise your training procedures? What are some of the procedures that have changed recently and why were they changed?

APPENDIX G

ANIMAL PICK UP AND RETURN CHECKLIST

<b>Staff Name:</b>	<b>Program Time:</b>	
<b>Date:</b>		
<b>Program:</b>		
<b>Animals Used:</b>		
<b>Shelly Animal Pick-Up</b>	<b>Yes</b>	<b>N/A</b>
Choose animal according to guidelines		
If animal list substitution is needed, cleared it through proper channels. DETAIL WHO: _____		
Check appropriate cooler size and packing procedures on bottom of tank label.		
Ensure cooler is properly lined with paper.		
Check hot water bottles for temperature and leaks!		
Animal is signed out with vis a vis pen on correct day.		
Heat pad and red bulbs are replaced in proper location, not creating a fire hazard.		
Items are not left underneath heat lamp.		
Exterior door is closed and locked (after hours).		
Lock front door to classroom 3.		
Coolers packed in vehicle properly: <ul style="list-style-type: none"> <li>• Away from sources of extreme temperature</li> <li>• Not stacked on top of or below other animals/items</li> <li>• Steady and secure so cooler will not tip during transport</li> </ul>		
<b>Notes:</b>		
<b>Shelly Animal Return</b>	<b>Yes</b>	<b>N/A</b>
After hours, carry a walkie or cell phone to call Gate H and gain access to Shelly.		
Check tank for hazards before returning animal (no other animal in cage, returning to correct cage, cage furniture in proper/safe location, etc.)		
Water bowl on opposite side of heat pad		
Heat pad and red bulbs are replaced in proper location, not creating a fire hazard.		
Items are not left underneath red lamp.		
Re-secure enclosure.		
Cooler is disinfected , dried thoroughly and returned to proper location.		
Chemicals placed in chemical closet and closet is locked		
Water bottles are hung over the sink to dry.		
Water bottle lids placed in purple bin		
Properly reported any issues and concerns, including if animal produced stool or urea while on program.		
Back door is closed and locked.		
After hours, turn off light timer.		
Lock front door to classroom 3.		
<b>Notes:</b>		

**RETURN THIS SHEET TO YOUR MANAGER WHEN COMPLETE**

<b>Staff Name:</b>	<b>Program Time:</b>	
<b>Date:</b>		
<b>Program:</b>		
<b>Animals Used:</b>		
<b>CZ Animal Pick Up</b>	<b>Yes</b>	<b>N/A</b>
Checked animal list to confirm program animal assignment.		
If substitution is needed, cleared it through proper channels. DETAIL WHO: _____		
Confirmed removal of correct animal from enclosure.		
Correctly packed animal for travel.		
Flipped all tags to read "on program"		
Checked enclosure items (heating pads, hide boxes etc.)		
Re-secured all enclosures.		
Re-secured all necessary building doors/gates.		
Correctly packed animals for transportation.		
Picked up travel diet (if one was assigned)		
Properly reported any issues or concerns.		
<b>Notes:</b>		
<b>CZ Animal Return</b>	<b>Yes</b>	<b>N/A</b>
Confirmed return of correct animal to enclosure.		
Discard any remaining travel diet items.		
Return diet container.		
Flipped all tags to proper side.		
Checked enclosure items (heating pads, hide boxes etc.)		
Re-secured all enclosures.		
Properly cleaned and returned all carriers.		
Left carrier barn in an organized manner.		
Re-secured all necessary doors/gates.		
Properly reported any issues or concerns.		
<b>Notes:</b>		

**RETURN THIS SHEET TO YOUR MANAGER WHEN COMPLETE**