

# Can I touch it?: Zoo program impacts

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**Abstract:** As modern zoos strive to fulfill their conservation education missions, many seek to engage and inspire visitors by offering various contact experiences with animals. This study examined the impact physical contact with rats and snakes had on children's attitudes towards those animals. The results from short surveys with pictures and simple descriptive words showed that both seeing and touching an animal significantly improved feelings about that animal.



## Introduction

As I gently pull the gopher snake from its carrier, some second-graders gasp, some smile, and others dramatically scoot away. We talk about the snake's diet and habitat needs and how they help control rodent populations. When it is time to touch the snake, the first student scowls and shakes his head vigorously. The next two follow his lead. The fourth one leans forward for a tentative stroke. "Ohhhh, it's so soft," she says. After that, most of the children touch the snake, adding more adjectives: "Bumpy," "rough," "like a basketball," "like plastic." When I'm done, I give the original skeptics a second chance to touch the snake. They tentatively reach out their curious little fingers and don't look nearly as repulsed. Their smiles remind me why I am in this profession.

Most zoo educators can describe similar moments in which students overcome – or at least question – their preconceived notions about animals. Whether the degree of this shift is measured or not, it feels significant at that moment.

Increasingly, studies are examining how modern zoos impact visitors' environmental attitudes (Marino et al. 2010; Rabb 2004; Smith et al. 2008). However, the findings are inconsistent. What's more, most studies have focused on adult education and attitude change (Falk et al. 2010; Marino et al. 2010). While engaging adults is important, Kahn (2002) argues that children should be the focus of conservation movements.

Since more than half of Americans now live in urban areas, many children will not regularly

experience nature as they grow up (Miller, 2005). For these children, the local zoo may be their closest or sole encounter with plants or animals. The presence of urban children at zoos therefore provides an opportunity to reach a population that may lack positive nature experiences. As Randler et al. (2012) explain, positive attitudes towards animals can translate to an interest in protecting animals and the environment. Zoos already present a multitude of animal programs designed for children and are in an ideal position to influence the next generation. But what is the true impact of these programs? This study approaches one aspect of this question by looking at how touching an animal impacts children's attitudes towards that animal.

## Methods

### Designing the Study

Working to fulfill their conservation education mission, the Oregon Zoo's Program Animal staff present classroom programs to around 5000 kids per year. This study was conducted in the Pacific Northwest-themed programs for 2nd to 5th grade classrooms. Focusing on local wildlife, students in these programs saw, and sometimes had the opportunity to touch, a Norway rat (*Rattus norvegicus*) or a gopher snake (*Pituophis melanoleucus*). They also saw, but did not touch, a Western screech owl (*Otus kennicottii*).

Simple, one-page surveys were designed with three questions each about a rat and a snake. The two questions evaluated for this study asked students 1)

how they felt when seeing the target animal and 2) invited them to describe it by circling simple adjectives.

### Conducting the Surveys

Two weeks prior to the zoo presentation, teachers that had signed up for the Northwest-themed programs were invited via email to participate in this study. All nine classrooms that were approached agreed to participate. Teachers administered a pre-survey to the students a week prior to the zoo program. Zoo staff administered an identical post-survey immediately after the program. For all surveys, students were told their participation was optional and were instructed not to include their names.

The same zoo educator presented identical programs to participating classes with the only variable being which animal was touched and which was seen but not touched. Students were invited, but not required, to touch an animal. Zoo staff removed the surveys of students who chose not to touch an animal from the analysis.

### Results

#### Response Rate

Nine classrooms from three different schools participated in these surveys. A total of 399 surveys were completed with 200 pre-surveys and 199 post-surveys. The rat and snake data were analyzed separately resulting in 200 pre-surveys and 199 post-surveys for rats and 199 and 196 respectively for snakes. The number of pre- and post-surveys differ due to indecipherable answers and one student who chose not to touch the snake; these surveys were removed from the analysis. While the pre-survey conditions established the baseline, the post-surveys measured variable conditions: four of the classrooms (N=80) did not touch any animals at all and five of the classrooms touched either the rat (N=45) or the snake (N=74).

#### Rat Results: "Seeing a rat makes me feel..."

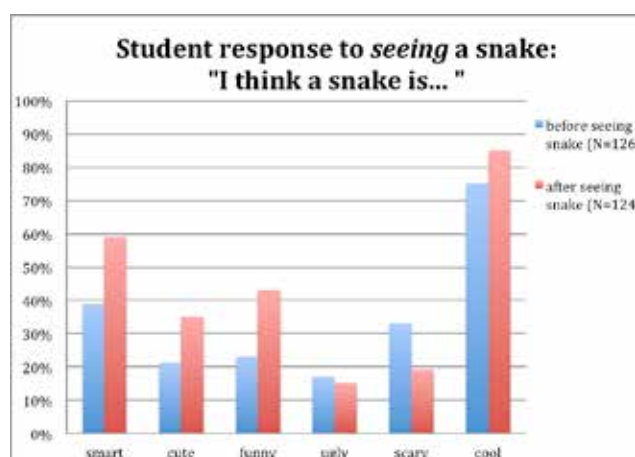
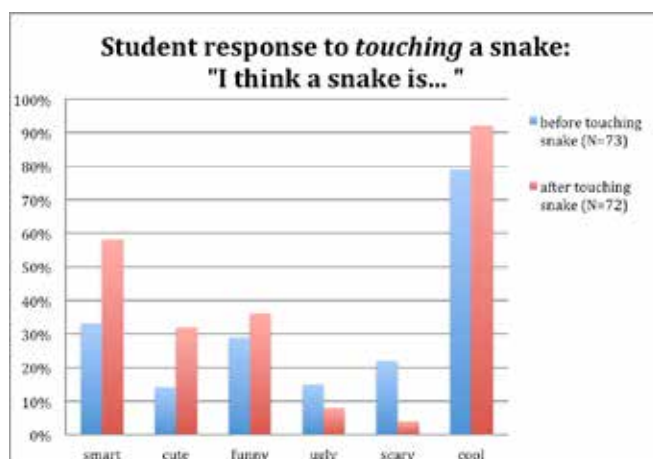
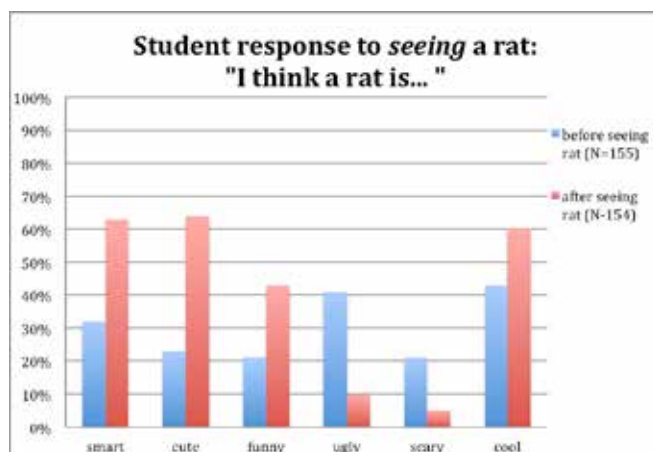
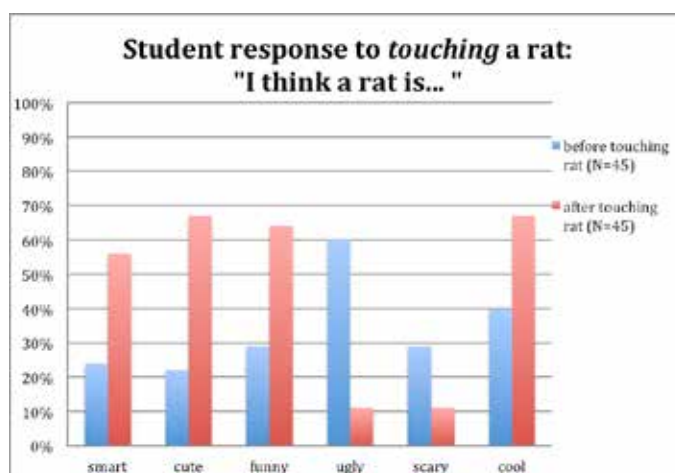
After seeing or touching an animal, students responded to the prompt: "Seeing a rat makes me feel..." by circling a happy, neutral, or unhappy face. Survey answers were assigned a value: 1 = happy, 2 = neutral, 3 = unhappy. Two classrooms (N=45) saw and touched a rat and seven classrooms (N=154) saw a rat but did not touch it. In both cases, students' attitudes toward rats improved after seeing or touching the rat. The changes were statistically significant according to an unpaired student t-test that revealed p-values lower than 0.05.

#### Snake Results: "Seeing a snake makes me feel..."

Three classrooms (N=72) saw and touched a snake and six classrooms (N=124) saw a snake but did not touch it. In both cases, students' attitudes toward snakes improved after seeing or touching the snake. The changes were statistically significant according to an unpaired student t-test that revealed p-values lower than 0.05.

#### Seeing One but Touching the Other

Three of the classes that saw (but did not touch) a rat did get to touch a snake. Conversely, two of the classes that saw (but did not touch) a snake did get to touch a rat. In addition to being lumped together in the above analysis, these classrooms were also analyzed separately to





determine if, for example, touching a snake made kids feel better about the rat even if they did not touch the rat. The results revealed that touching one animal did not significantly change their feelings about the other animal.

#### **Descriptive Words: “I think a rat/snake is...”**

For the second survey question, students were invited to circle all the words that they associated with that animal. The options were: smart, cute, funny, ugly, scary, and cool. There were some basic patterns in the results for both animals (Figures 1-4). More students described both snakes and rats as smart, cute, funny, and cool after seeing or touching them than before their experience. Fewer students described both snakes and rats as ugly or scary after seeing or touching them. More students initially perceived rats to be uglier and scarier than snakes; more students found snakes to be cooler than rats. Seeing and touching effects were very similar though touching a snake reduced the ugly and scary perceptions more than when just seeing the snake.

### **Discussion**

#### **Student Response to Touching or Seeing an Animal**

In all conditions of this study, whether students were seeing or touching an animal, student attitude towards that animal significantly improved. Interestingly, starting attitudes towards snakes were more positive than starting attitudes towards rats. In the end, positive attitudes towards both animals were similar, with attitudes towards rats improving more dramatically than attitudes towards snakes. Rat or snake, touching or not touching, the results support the value of these zoo programs.

#### **Shifting Attitudes About Icky Animals**

A unique variable in this study is the likelihood that students came into the classroom with a prejudice against rats and snakes. Both animals often solicit negative reactions; rats for being farm pests and carriers of disease, and snakes for the threat that venomous snakes pose to humans worldwide (Randler et al. 2012). Randler et al. (2012) found that student contact with animals originally perceived as ‘disgusting’ reduced their feelings of disgust. This study’s results concur, evidenced by the strong decline of the use of ‘ugly’ or ‘scary’ to describe the rat or the snake. Since the danger these animals pose to humans is negligible in most regions of North America, zoos have a great opportunity to reshape preconceptions through their education programs.

#### **Children and Animals: A Natural Pairing**

As zoos reach for their conservation goals, one of the advantages they have is that children are regularly drawn towards animals as a part of their play and exploration. Whether it is a pet, a zoo animal, or a fictional character in books, games, or movies, children gravitate to activities that involve animals (Rud and Beck 1999). Many aspects of society and business show our recognition of this affinity

and not surprisingly, the most popular zoo programs are the ones that offer opportunities to interact with animals (Beck et al. 2001).

Unfortunately, there continues to be little research about how seeing or touching live animals affects emotions and learning (Randler et al. 2012). A few studies provide evidence for the positive effects that animal interactions have on well being, health, worldview, morale, and attitude towards the animal that was touched (Beck and Katcher 2003; Randler et al. 2012; Shiloh et al. 2003). Some teachers have observed that their students are calmer, more social, and eager to learn in the presence of classroom animals (Rud and Beck 1999; Rud and Beck 2003). Shiloh et al. (2003) found that petting an animal reduced anxiety regardless of that person’s general feelings about animals. And it wasn’t just the warm fuzzy animals that made a difference; the stress-reducing benefits of petting were experienced when petting a soft rabbit as well as when petting a hard-shelled turtle. Even though they are limited in number, these studies support the value of animals when teaching and interacting with children.

#### **Future Studies**

Even though this study did not conclusively show that touching an animal is more impactful than seeing an animal, the touching in these programs is limited to one or a few swipes of the hand. Can this really count as significant contact with an animal? Randler et al. (2012) found that closer, prolonged physical contact with an animal improved attitude towards that animal relative to less physical contact. How might attitudes shift if students were allowed to partake in more substantial contact in these zoo programs?

Anecdotally, this zoo educator has experienced the rapt student attention that comes with being the new visitor to a classroom. Surely the presence of the animals improves this novelty effect, but by how much? Building on a previous informal evaluation at the Oregon Zoo, a future study is being planned that will examine this question: If children learn from a zoo educator about an animal through images and artifacts rather than live animals, will similar positive attitude shifts still occur?

Finally, while this study measured the impact of the program animals on children’s attitudes, zoos must also consider the impact of these programs on the animals themselves. Whether it is a petting zoo goat, a raptor on the glove, or a rat in a classroom, it is possible that this intimate contact with humans is stressful for the animal. In a recent study, Farrand et al. (2013) evaluated several petting zoo species and observed that variable visitor densities and grooming by visitors did not solicit negative behaviors or impact the welfare of the animals. Meanwhile, Baird et al. (2013) collected cortisol metabolites and behavior responses from three species of program animals to determine their stress levels in relation to the amount of handling. Their results imply a threshold

for different species and different individuals at which point they seem to become more stressed. Further program animal welfare evaluations such as these, alongside educational impact studies, will help zoos better utilize and care for their program animals.

### Conclusion

As children grow up in a society that is increasingly disconnected from nature, zoos are in a unique position to make a difference. By providing children with positive and meaningful animal encounters, zoos can have a profound impact on children's attitudes and the future of environmental conservation. This study offers evidence that seeing and touching animals improves attitudes towards those animals, supporting the value of program animals in zoo education. While more studies are needed, these results, combined with the awe in children's faces when they touch an animal, are enough validation for this zoo educator to continue providing this stimulating experience.

### Acknowledgements

I'd like to thank Tanya Paul and Grant Spickelmier for their support and feedback in developing this study at the Oregon Zoo. Also, thanks to the students and teachers from the nine Portland area schools that participated in the study. Finally, thanks to the Global Field Program at Miami University for their support and encouragement.

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