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Science Comes Alive: Impact of Animal Ambassadors in the Classroom

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Wild Wonders has been “taming” kids’ and adults’ curiosity about wildlife and inspiring better environmental stewardship since 1991. As educators, we see the wonder in children’s eyes and the awe in their faces as they come face to face with a live kinkajou, binturong, or alligator. But are we really making a difference in learning, understanding and caring for wildlife and the environment? Longtime Wild Wonders volunteer and grad student Laura Marx decided to put this to the test.

The following are the results of her study on the impact of live animals in the classroom.

Laura took two study groups of inner city, low income kids, one a control group and the other the test/experience group and offered one a conservation education program (with no animals but with a PowerPoint presentation) and the other a program with live creature teachers.

Abstract

Successful wildlife education programs can help children understand their place in the natural world and inspire concern for environmental issues. This study addressed the issue that children growing up in low-income urban centers have little opportunity for contact with nature and wildlife. Knowledge gain and attitudinal change towards exotic animals were measured by the use of survey and quiz questions. The scores were compared between two groups of children: one which was given a fact-only presentation and the other given an interactive presentation with live animals present. The results of this study showed that exposure to animals in a learning environment has significant effects on knowledge gain in underprivileged youth, but significant attitudinal change may require more exposure over the long term.

Introduction

There is a plentiful amount of existing research on children’s knowledge and attitudes towards animals. Knowledge of animals can be influenced by factors such as location, socioeconomic status, age, and ethnic background. Overall, findings show that Caucasian children, children with parents who have a college education, and children from rural areas receive comparatively higher scores on tests assessing knowledge of animals (Kellert&Westervelt, 1984). Regardless of any distinguishing factors, children of all backgrounds were in general mostly found to have a humanistic attitude towards animals, meaning they felt they could only relate to animals close to home, such as pets (Kellert&Westervelt,

1983). Wildlife education is of growing importance because the state of the natural world will eventually rely on the children of today and their future actions in the conservation field. Wildlife education must do more than simply provide information about animals, because research suggests that knowledge about animals and attitudes towards them are not highly correlated. In a study involving animal education focused on a commonly feared animal, the snake, message-based approaches combined with direct contact opportunities seemed to be most effective in changing children’s attitudes. Informational sessions helped increase knowledge but did not promote more positive attitudes (Morgan & Gramann, 1989). Morgan (1992) proposed a system to determine the effectiveness of wildlife education programs in affecting knowledge and attitudes towards conservation. The study found that the highest percentage of participants fell into the balanced category (scoring high on both emotional and cognitive measurements) after a program incorporating information, exposure, modeling and contact with wildlife.

In an increasingly urbanized world, one reason for the lack of awareness of wildlife is a lack of opportunity for meaningful wildlife-related experiences during childhood. Nygreen et al. (2006) defines urban youth as “underserved, poor, marginalized, ethnic minority youth”. A review by Kellert and Westervelt (1983) stated that urban children’s understanding of wildlife was gained primarily from television shows. Because of poverty, lack of transportation, and increased stressors such as rates of gun and gang violence in this neighborhood, these children get little opportunity for hands-on contact and education about wildlife (Nygreen et al., 2006). Thus they may have less knowledge and concern for wildlife. This “extinction of ecological experience” is a concern for children in urban areas (Miller, 2005). While people living in urban areas are less connected with the natural world, their early life experiences and perceptions of nature may be essential to their involvement in conservation action. Wells and Lekies (2006) found that experiences with “wild nature” during childhood significantly affected pro-environmental behaviors later in life. To promote active citizenship for a sustainable future, it is important to encourage equal opportunities in wildlife education and to spread awareness of conservation issues to groups that are normally not exposed to these issues or not given opportunities for this kind of involvement. This study addressed the issue that children who grow up in urban areas, specifically



Laura Marx

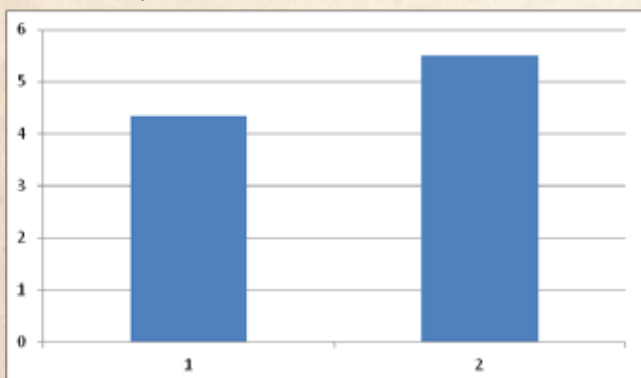
low-income neighborhoods, are underrepresented in zoo and wildlife educational programs. The purpose of this study was to examine whether direct exposure to animals in a learning environment positively affects the knowledge gained and attitude changes of urban, low-income youth towards animals and wildlife conservation.

The children surveyed for this project were part of an after-school group of students aged 8-12 (3rd to 5th grades) at Cherokee Point Elementary. This school is located in City Heights, an urbanized, low-income area of San Diego. The after-school group is part of the Trauma Informed Community Schools program. This program recognizes that the students within this community are subject to poverty and resulting traumas, and it seeks to address these problems by engaging students in activities that inform them of social justice issues such as bullying, homelessness, domestic violence, and animal rights. In the past, students within this group displayed an interest in the animal rights topic but focused only on domestic animal abuse and homelessness (for pets such as dogs and cats). Exposure to and concern for exotic animals was still a novel topic, and the opportunity to provide them with this new learning experience seemed ideal.

The youth leadership group consisted of 25 students which were divided into two groups. Students were randomly assigned numbers which placed them in either group one (control group) or group two (exposure group). The exposure group was given an interactive presentation by Wild Wonders with the animals present, while the control group was given a traditional lecture through a PowerPoint presentation with no animals present. Presentations were conducted separately during consecutive weeks, due to scheduling and limited time for each meeting with this group. The leadership group met once a week from 12:30-2:30 pm throughout the school year. The theme of the Wild Wonders show (and corresponding fact-only presentation) was "Walk on the Wild Side," presenting exotic animals from all over the world to tie into a global conservation theme. The animals presented were a hairy armadillo, an American alligator, a red tailed boa constrictor, a kinkajou, an African pygmy hedgehog, and Madagascar hissing cockroaches. Both groups were presented with the same information.

Knowledge

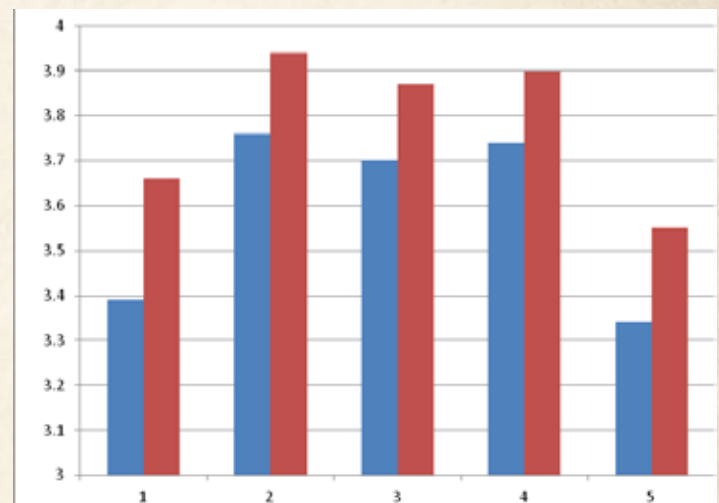
A Student's T test was performed in MS Excel to compare scores demonstrating knowledge retained about animals between the control and exposure groups. A significant difference was found (p value = 0.0086), as the exposure group had higher scores ($M = 5.5$, $SD = 0.67$) than the control group ($M = 4.35$, $SD = 1.17$).



Attitudes

To examine whether direct exposure to animals enhances attitude change in the children, a two-group (control/exposure to animal) x two-time of testing (pre-survey/post-survey) analysis of variance was run on the total attitudes score. No significant interaction or main effects were found. However, children in both groups appeared to increase in positive attitudes towards animals from pre ($M = 41.89$, $SD = .88$) to post ($M = 42.33$, $SD = 6.22$).

To further examine attitude change, a two-group (control/exposure to animal) x two-time of testing (pre-test/post-test) analysis of variance was run on each item. Although no significant results were found, overall children's beliefs that they "have the power to help animals in the future" appeared to increase from pre ($M=3.39$, $SD = .24$) to post ($M = 3.66$, $SD = .22$). Children's beliefs that "animals have feelings like people" increased from before the presentations ($M = 3.76$, $SD = .10$) to after the presentation ($M = 3.94$, $SD = .05$), and their beliefs that "animals play an important role in the environment" increased from pre- ($M = 3.70$, $SD = .10$) to post-assessment ($M = 3.87$, $SD = .07$). In addition, children's beliefs about whether "it's okay to keep a wild animal as a pet", and "concern about the rain forest" (pre: $M = 3.34$, $SD = .17$; post: $M = 3.55$, $SD = .15$) changed in the positive direction as well (pre: $M = 3.74$, $SD = .18$; post: $M = 3.90$, $SD = .08$).



Some of the specific attitudinal survey statements which did show a positive change in score over time for both groups. For instance, "it's okay to keep a wild animal as a pet" and "animals play an important role in the environment" were statements that corresponded with the information emphasized in the presentations. Children's concern about the rainforest may have increased because the rainforest was a habitat type whose importance was mentioned several times in relation to the animals presented. Children felt empowered to help animals in the future.

Figure 2. Total scores in both groups (control and exposure) increased for specific survey questions measuring attitudes towards animals and nature.

Although both groups showed an increase in total scores, the exposure group did appear to show slightly higher scores and more positive change from pre and post as compared to the control group for some questions. The percentage of students in the control group who strongly agreed that they had "the



Action/Reflection

It is important to allow equal access to different types of education to all groups of children. School administrators and teachers, particularly those located in low-income urban neighborhoods, must realize the importance of integrating animal education and conservation themes into curriculum and engage their students in more activities concerning environmental issues. I applied for IRB approval so I am able to share this study with relevant organizations. I plan to share the results with Wild Wonders, Inc., and its partner the Zoofari foundation as I know their staff will be highly interested in this project's results, as they demonstrate the potential benefits of animal ambassador outreach programs, especially to groups for which on-site education is not accessible. Other outside organizations which may be interested in this information are those whose missions are to support underprivileged children and provide them

Laura Marx

with opportunities to grow, such as the Boys & Girls Club and other programs at Title 1 schools. Finally, other wildlife organizations that are concerned with spreading awareness of conservation issues and engaging youth in educational programs such as the San Diego Zoo or other local wildlife education organizations are also prospects.

The study's results provide support that hands-on animal interaction in an education setting is beneficial for the purposes of learning about and retaining knowledge of wildlife. The study was not as successful in demonstrating attitudinal change towards animals after exposure; however, it could be argued that this type of programming over the long term is even more necessary for the underprivileged urban children lacking in opportunity. The results support the need for animal ambassador programs as they can be beneficial in reaching children from diverse backgrounds who may not have access to such learning experiences.

Acknowledgements

A special thanks is extended to the generous staff of Wild Wonders, Inc., for their participation in this project and the Zoofari Foundation for providing the funding to make this project possible.

As wildlife educators, we can be discouraged and at times depressed to experience the lack of empathy and understanding about the living world around us. I think this study has demonstrated that no matter the socio-economic background children are coming from, we can make a difference to inspire them to be better stewards for wildlife and the environment.

We would like to thank Laura Marx for her study! 🐰

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power to help animals" increased from 42.9% from pre to 50% at post, whereas the percentage of students in the exposure group who strongly agreed that they had "the power to help animals" increased from 54.5% at pre to 72.7% at post. Furthermore, the percentage of students in the control group who strongly agreed that they "believe animals have feelings like people" increased from 64.3% at pre to 80% at post, whereas, the percentage of students in the exposure group who strongly agreed with that belief increased from 81.8% at pre to 100% at post. Finally, the percentage of students in the control group who strongly agreed that "animals play an important role in the environment" increased from 57.1% at pre to 70% at post, whereas the percentage of students in the exposure group who strongly agreed that "animals play an important role in the environment" increased from 90.9% at pre to 100% at post.

Limited exposure to nature is a problem for underprivileged youth growing up in highly urbanized neighborhoods. This project addressed the issue that this target group often does not have the opportunity for valuable experiences in wildlife education by providing them with a unique, interactive opportunity for learning about exotic animals. This study's results provide an argument for the benefits of hands-on animal interaction in an education setting for the purposes of retaining facts about wildlife.

Some of the specific attitudinal survey statements which did show a positive change in score over time for both groups, such as "it's okay to keep a wild animal as a pet" and "animals play an important role in the environment," were statements that corresponded with the information emphasized in the presentations. Children's concern about the rainforest may have increased because the rainforest was a habitat type whose importance was mentioned several times in relation to the animals presented. Children felt empowered to help animals in the future, likely because of the conservation themes discussed. While both groups showed a positive change in empathy towards animals, it is significant that 100% of the exposure group stated that they strongly agreed that "animals have feelings like people" after contact with animals.