Idaho Falls Zoo's Model for Inspiring Conservation Through Empathy

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Abstract

Accredited zoos are striving to consistently incorporate empathy best practices within their programming to positively influence knowledge and effect behavioral change towards wildlife conservation efforts [1-6]. The literature outlines best practices for developing empathy in educational programming that include framing, providing experiences, role modeling, activating imagination, practice, and increasing knowledge [6-7]. Unfortunately, there is not a clear method or model on how to incorporate empathy within zoo's exhibits and systems for the general visitors' experience.

After analyzing the needs of the facility and its patrons, the Idaho Falls Zoo at Tautphaus Park (IFZ) has designed and begun to implement an innovative model for empathy development. This model, the **Inspiring Conservation through Empathy Model** (ICE-M), establishes a way for zoos to collaboratively develop empathy for general zoo visitors.

IFZ has received a grant through the Advancing Conservation Through Empathy (ACE) for Wildlife Network to test ICE-M from April 2022 through September 2023. Under this grant IFZ is employing ICE-M to design and develop a new exhibit, Adventure Island. Specifically, IFZ will complete two cycles of ICE-M, collect data from zoo guests to measure effectiveness of the model, and determine the feasibility of the model in practice. At the end of the project, IFZ hopes to document ICE-M as a model to be used by other zoos to design and develop exhibits or even entire zoo experiences that effectively incorporate empathy-based learning experiences.

Increasing Empathy through Conservation Model (ICE-M)

The ICE-M is a novel model that employs the following key features to promote empathy development and conservation action:

- iterative development [8]
- review of zoo strategic plans and goals
- use of local expert stakeholders for regional input
- crowdsourcing ideas for empathy at the zoo from the public [9-10]
- integration of technology to increase empathic opportunities
- design and implementation adherent to best practices [6-7]
- reliance on established empathy data collection tools [11-12]
- data driven decision making

Methods

Using the ICE-M methods, IFZ will form a Citizens Advisory Board (CAB) comprised of local expert stakeholders to gather regional input for the new exhibit. The CAB will meet regularly and provide guidance to zoo leadership on how to infuse empathy into Adventure Island. Further, IFZ will gather ideas for empathy at the zoo from visitors through public surveys.

IFZ will collect data from zoo guests to evaluate the effectiveness of ICE-M at the zoo and Adventure Island to measure visitor satisfaction, knowledge, conservation action, and empathy development. IFZ will employ the following measures:

1. Semantic Differential Scale (SDS) [11] to document changes in visitors' attitudes and perceptions of the animals in the exhibit.
2. Expressions of Empathy and Related Emotions Towards Animals [12] is an observation-based tool to document expressions and behaviors of empathy from zoo visitors.
3. Adventure Island experience survey will gather feedback related to knowledge, feedback on the exhibit, and satisfaction; and
4. Online surveys will be sent to visitors (who sign up) 30-days after their visit to inquire about conservation behaviors.

Process evaluation methods will also be employed to provide insights about the use model in practice and provide a roadmap to finalize ICE-M for scale-up at the zoo.

Examining both outcome and process data, IFZ will be able to understand if ICE-M holds promise as a method to increase empathy and conservation behaviors for guests.
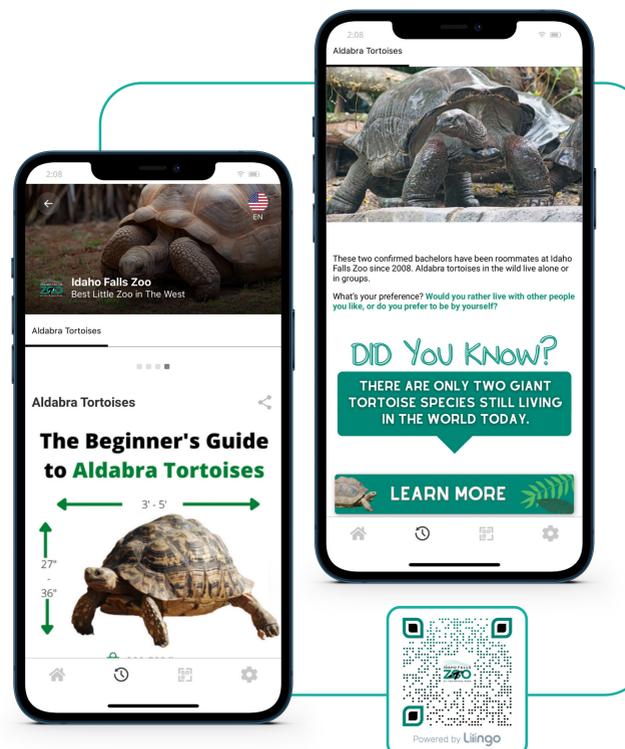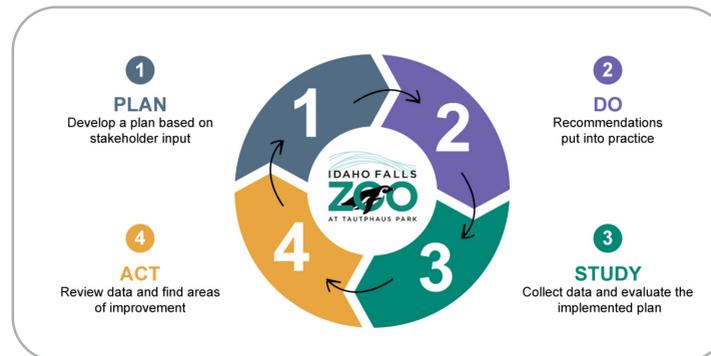
Results

The CAB was established in 2021 to begin the design and development of Adventure Island using ICE-M. Currently, there are 18 individuals serving on the CAB. The CAB helped IFZ leadership to identify three educational enhancements at Adventure Island under Year 1 of the project; a) interactive puzzle wall, b) empathy-focused mobile exploration stations, and c) Adventure Island app with "choose your own adventure" style game.

In June 2022, IFZ collected data from 84 guests to better understand what information they want to learn about the animals, the use of app technology, and interest in new exhibits. The information is being used to design Adventure Island and new app content. Empathy related baseline data suggests guests who interact directly with a zoo representative demonstrate more active empathetic responses. The response appears to also increase when the guests meet an animal up-close, even an animal which some may find hard to personally connect with (such as a reptile or invertebrate). The team is excited to see if these results hold true or increase with the opening of Adventure Island.

IFZ has collected 350 observations points for baseline data using the Expressions of Empathy and Related Emotions Towards Animals tool. This data will establish the level of empathy the average guest displays at a set moment. This tool will continue be used as the empathy-based exploration stations are rolled out, and eventually, when Adventure Island opens. Researchers measured inter-rater reliability to increase validity of the findings. The inter-rater reliability test showed that our observers have 'moderate agreement' agreeing more than 80% of the time.

An ANOVA was performed to compare the effect of animal encounters on visitor's empathy using the SDS tool. The data revealed there was a statistically significant difference in empathy before and after an animal encounter ($F(1, 98) = [9.911]$, $p [0.00218]$). Post hoc comparisons using the Tukey HSD test indicated the mean score for empathy after an encounter (M = 46.52, SD = 5.306) was significantly different from empathy before an encounter (M = 43.4, SD = 4.861).

The data also showed there was a statistically significant difference in empathy of Zoo guests that used the Zoo's app compared to those that did not use the app ($F(1, 98) = [8.367]$, $p = [0.00471]$). Post hoc comparisons using the Tukey HSD test indicated the mean score for empathy of those who used the app (M = 50.38, SD = 4.138) was significantly different from empathy of those that did not use the app (M = 45.84, SD = 5.572).

What's Next?

Complete educational enhancements for Year 1 (i.e., puzzle wall, exploration stations, app). Work with CAB to begin second cycle of ICE-M to identify additional enhancements for Year 2.

Beginning April 2023, the data collection will focus on post data to determine if empathy and conservation behaviors for guests improves after visiting Adventure Island.

At the conclusion of this study, and with promising outcomes, the IFZ plans to extend this model throughout the zoo. If successful at full scale, the IFZ would assist in future replication of the model for other zoos and aquariums looking to enhance empathy and integrate technology into exhibits to increase conservation efforts of visitors.

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