

Evaluation of a Naturalistic Exhibit: The Northern Trail at Woodland Park Zoological Gardens

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Introduction

Since the early 1980's, zoo exhibits have been designed naturalistically to create accurate and detailed visual representation of natural ecosystems (Coe, 1985). One goal of this design technique is to facilitate visitor learning of facts and attitudes about the environment (Bitgood, Patterson & Benefield, 1986; Coe, 1985). Learning within this context is largely non-formal (Bitgood, 1988; Lessow, 1990), a place where visitors must be self-motivated to learn (Bitgood, 1988; Bitgood, Serrell & Thompson, 1994; Screven, 1986). While evaluation of visitor response to the zoo environment has taken many forms in the last 15 years (e.g., Altman, 1990; Bitgood & Benefield, 1987; Wolf & Tymitz, 1981), few reports of visitor response to naturalistic exhibits are available (see Cieslik, 1993; Price, Ashmore & McGivern, 1994; Shettel-Neuber, 1985, for exceptions).

Background

The purpose of this project was to provide feedback to Woodland Park Zoological Gardens staff about specific attributes of the Northern Trail, a naturalistic exhibit simulating the Alaska taiga biome. The exhibit was assessed for how well visitors responded to the exhibit's attractiveness (measured by visitor perception of the exhibit's degree of naturalism and attractiveness), enjoyment potential (measured by visitor perception of the exhibit's degree of entertainment and interest), and animal well-being (measured by visitor perception of exhibit animal comfort, behavior, and health). In addition, the exhibit was also evaluated for whether visitors

felt they learned facts or attitudes during their visit, and their overall impressions of the exhibit.

Methods

The Site

The Northern Trail opened to the general public in October, 1994. The exhibit was comprised of six mammal species: gray wolf/*Canis lupus*, fisher/*Martes pennanti*, brown bear/*Ursus arctos*, American river otter/*Lutra canadensis*, mountain goat/*Oreamnos americanus*, elk/*Cervus elaphus* and three bird species (snowy owl/*Nyctea scandiaca*, red crossbill/*Loxia curvirostra*, and bald eagle/*Haliaeetus leucocephalus*). The Northern Trail was designed to attract and maintain visitors' attention by encouraging naturalistic behaviors of animals, displaying animals at eye level to visitors' sight-lines, maximizing proximity between visitors and animals, and reducing visible barriers among animal exhibits.

Data Collection and Analysis

A self-administered questionnaire was developed through consultation with Woodland Park Zoological Gardens staff. A draft questionnaire was tested one week before formal data collection began. The final questionnaire used scaled questions (semantic differentials, scaled 1 to 5), fixed-response questions (yes, no, don't know), and open-ended questions. A total of 20 questions were used in the study; only responses to seven of these questions are reported within this study.¹

A table with four chairs and four clipboards was set up outside the exhibit each morning before data collection. A single "recruitment line" demarcating the exit to the exhibit was established. Data collection started with the recruitment of one visitor, the first adult to cross the recruitment line after the researcher had arrived. Adults were defined as those visitors thought to be 18 years or older. Once the first visitor had begun their questionnaire, the next visitor to cross this recruitment line was immediately recruited. This process continued until a total of four visitors (four adults) were filling out questionnaires. As a visitor finished their questionnaire, the next visitor (adult) to leave the exhibit and cross the recruitment line was immediately recruited. All visitors were approached

using an identical predetermined script. If a visitor within a group crossed the recruitment line next (as often happened), he or she was the *only* individual within the group asked to fill out a questionnaire. Coloring books and crayons were provided at the table to help keep young children occupied.

Data collection took place on four consecutive Saturdays during April and May 1995. Data were collected from noon to 2 pm. A total of 225 questionnaires were collected. Fourteen visitors declined to fill out questionnaires, for a refusal rate of 6% ($225 + 14 / 239$). Reasons for refusals included: lack of time, tired and cranky children, English not spoken or read, and not interested.

All data were analyzed using SPSS for Windows, 6.1. Data were analyzed for central tendency (means) and percentages.

Results

Scaled Responses

Visitors perceived the Northern Trail to be aesthetically pleasing (naturalistic $\bar{x} = 4.5$ and attractive $\bar{x} = 4.6$), enjoyable (entertaining $\bar{x} = 4.5$ and interesting $\bar{x} = 4.6$), with well-cared-for animals (healthy $\bar{x} = 4.6$, comfortable $\bar{x} = 4.4$, and behaving naturally $\bar{x} = 4.3$) -- (Table 1, questions 1, 2 & 3).

Fixed Responses

Visitors to the Northern Trail were equally divided about whether they learned specific facts (33%), didn't learn specific facts (36%), or didn't know if they learned specific facts (31%) during their visit (Table 1, question 11). In contrast, most visitors felt they learned to "appreciate species and their habitats more" while visiting the Northern Trail (60%), with one-fifth disagreeing with this statement (21%), and one-fifth not knowing if they learned new attitudes (19%) (Table 1, question 12).

Open-Ended Responses

When asked what they most liked about the exhibit, visitors most frequently responded that they liked a specific animal (overwhelmingly

the bear) (25%), "the bears were GREAT!;" the naturalism of the exhibit (22%), "looked and felt like a habitat away from a zoo;" and specific design elements (16%), "stream, rocks, bear area and viewing" (Table 1, question 13). When asked what could be improved within the exhibit, visitors expressed concern about backtracking to exit (20%), "no dead end;" too few animals present (15%), "perhaps one or two more animals;" and animal well-being (14%), "larger roaming space for animals" (Table 1, question 14).

The visitor sample is presented in Table 2.

Discussion

The results of this study suggest that the Northern Trail was perceived as enjoyable and interesting, two important components of non-formal learning (Bitgood 1988; Lessow, 1990; Screven, 1986). In addition, visitors seemed largely unconcerned about animal well-being, a positive sign since animal pacing or other aberrant behavior can distract visitor attention away from the exhibit's message (Altman, 1990). Akin to other kinds of museums, the results of this study suggest that visitors felt they were almost twice as likely to learn appreciation for animals or habitats rather than specific facts about animals or habitats (Bitgood et al., 1994).

Not only did visitors report positive attitudes toward the naturalism and attractiveness of the exhibit, they also provided unsolicited written comments about how they perceived the space and which specific design elements (e.g., plants, ponds, or sculptures) helped to create this experience for them. At least three factors may help to explain this strong positive response to the exhibit. First, the design of this exhibit balanced visitors' proximity to animals and the perceived "naturalistic experience" of the exhibit. Second, the Alaska taiga theme of the exhibit represented a familiar ecological environment to many Pacific Northwesters, creating a balance between portraying a familiar exhibit theme and presenting it in a new way. Lastly, the newness of the exhibit was maximized at this time because the exhibit had just opened and 73 percent of the sample were first-time visitors.

A comparison of open-ended responses to what visitors most liked and disliked within the exhibit suggested an appreciation for the naturalism and an unmet expectation for some "traditional" qualities of zoo design

(perception of too few animals present and concerns about animal well-being). Given the tremendous changes in zoo exhibit philosophy and design in the last 25 years, it is not surprising that some visitors express frustration, or at least confusion, about current trends in naturalistic design.

Limitations to the Study

Before and during data collection, the Northern Trail was highly publicized by local newspapers and television media within the Seattle community. This publicity may have influenced visitors' attitudes.

Conclusion

With the ever increasing emphasis on naturalism in zoo design, further understanding of visitor perception of naturalistic exhibits and the relationship between naturalistic design and visitor learning can help to guide future developments in zoo exhibitry.

References

- Altman, J. (1990). *The effect of zoo animal activity on animal well-being, human learning and zoo animal-visitor interaction*. Unpublished doctoral dissertation, Temple University, Philadelphia, PA.
- Bitgood, S., Serrell, B., & Thompson, D. (1994). The impact of informal education on visitors to museums. In V. Crane et al. (Eds.), *Informal Science Learning: What the Research Says about Television, Science Museums, and Community-Based Projects*. Massachusetts: Research Communications Ltd.
- Bitgood, S. (1988). *A comparison of formal and informal learning* (Technical Report No. 88-10). Jacksonville State University: Center for Social Design.
- Bitgood, S. & Benefield, A. (1987). *Visitor behavior: A comparison across zoos* (Technical Report No. 86-20). Jacksonville State University: Center for Social Design.

- Bitgood, S., Patterson, D., & Benefield, A. (1986). Understanding your visitors: Factors influencing their behavior. *American Association of Zoological Parks and Aquariums Annual Proceedings* (Technical Report No.86-20), 1-11.
- Cieslik, L. (1993). *Public opinion and animals in captivity*. Unpublished doctoral dissertation, University of Wisconsin-Milwaukee, Milwaukee, Wisconsin.
- Coe, J. (1985). Design and perception: Making the zoo experience real. *Zoo Biology*, 4, 197-208.
- Lessow, D. (1990). *Visitor perceptions of natural habitat zoo exhibits*. Unpublished doctoral dissertation, Indiana University, Indiana.
- Price, E., Ashmore, L., & McGivern, A. (1994). Reactions of zoo visitors to free-ranging monkeys. *Zoo Biology*, 13, 355-373.
- Screven, C. (1986). Exhibitions and information centers: Some principles and approaches. *Curator*, 29, 109-137.
- Shettel-Neuber, J. (1985). *The Whittier Southeast Exhibits: A post-occupancy evaluation and comparison with older exhibits* (Technical Report No. 86-80). Jacksonville State University: Center for Social Design.
- Wolf, R., & Tymitz, B. (1981). Studying visitor perceptions of zoo environments: A naturalistic view. *International Zoo Yearbook*, 21, 49-53.

Footnotes

- ¹ A copy of the complete questionnaire is available in: Nelson, K. (1996). Summative Evaluation of the Northern Trail at Woodland Park Zoological Gardens. *Current Trends in Audience Research and Evaluation (CARE)*, (10), 66-74.

Table 1

Questions 1, 2, 3, 11, 12, 13, and 14 reproduced, with results indicated.

1. "The Northern Trail looked ..."							
	5	4	3	2	1		Avg.
natural	59%	34%	6%	1%	0%	unnatural	4.5
attractive	68%	26%	5%	0%	0%	unattractive	4.6
2. "The Northern Trail was ..."							
	5	4	3	2	1		Avg.
entertaining	61%	28%	10%	1%	0%	boring	4.5
interesting	66%	27%	6%	1%	0%	dull	4.6
3. "The animals living in the Northern Trail were ..."							
	5	4	3	2	1		Avg.
comfortable	54%	36%	8%	2%	1%	stressed	4.4
behaving naturally	56%	28%	12%	3%	1%	behaving unnaturally	4.3
healthy	65%	29%	5%	1%	0%	unhealthy	4.6
11. "Because I viewed the Northern Trail, I learned specific facts about species that I did not know before."							
	33% agree		36% disagree		31% don't know		
12. "Because I viewed the Northern Trail, I learned to appreciate species and their habitats more."							
	60% agree		21% disagree		19% don't know		
13. What did you like most about the Northern Trail? (three most common responses: specific animal/bear = 25%, naturalism of exhibit = 22%, exhibit elements (plants, sculptures, ponds, etc.) = 16%).							
14. What did you feel should be changed or improved within the Northern Trail? (three most common responses: backtracking = 20%, too few animals present = 15%, animal well-being = 14%).							

Table 2
Visitor Sample

Gender (%)

Female	56
Male	44

Age (%)

18-20	12
21-30	28
31-40	30
41-50	16
51-60	7
61 & older	4

Visitors who came with and without children (%)

With children	57
Without children	43

Number of total visits to the Northern Trail (%)

One time (just today)	73
Two times	12
Three times or more	15
