

# The Formative and Preliminary Summative Evaluation of the *Kongo Ranger Station*

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## Abstract

The *Kongo Ranger Station* is an interactive interpretive display located in the new *Africa Rain Forest* exhibit at the Metro Washington Park Zoo. It consists of two major areas: a 20'x30' authentic ranger's office and 30'x35' cargo box area. This display focuses on conservation, natural history and cultural issues in West and Central Africa. A formative evaluation began in September 1990. Concepts, logos, and a model of the *Ranger Station* were shown to visitors, zoo staff and experts. Modifications and additions were made thereafter. Signs, copy and illustrations, display concepts, costume designs, logos and props were shown to 28 fifth graders in five one-and-a-half-hour sessions. Appropriate modifications to the design were made per these discussions. A summative evaluation of the *Kongo Ranger Station* was conducted. A stratified sample of 75 visitors was observed and coded using focal sample methodology. Adults and children were observed as they visited the exhibit and interacted at pre-selected points. Time spent at each point and type of interaction with the exhibit were coded. Total time in exhibit and its relation to level and type of interaction is reported. In addition, an exit interview was conducted with 135 visitors, by which researchers assessed visitors' memory for important points in the display. Demographics, amount of time spent in the exhibits, and memory for information in the exhibit are reported.

## Introduction

The *Africa Rain Forest* exhibit opened at the Metro Washington Park Zoo on June 1, 1991 after two-and-a-half years of design, development and construction. An interactive display, the *Kongo Ranger Station*, was

developed to be the exhibit's major interpretive component. The *Kongo Ranger Station* consists of:

- 20'x30' Rangers' office
- Bulletin boards
- Desk and telephone
- Ranger's diary
- Shelves w/objects
- Display cage area
- 4 File cabinets
- Kongo Rangers with live animals (during summer season)
- Cot with mosquito net
- Boxes with touch items
- 1967 Land Rover
- 30'x35' cargo box area
- 27 boxes
- 14 barrels
- Animal skins

The objectives for the *Kongo Ranger Station* are:

1. To increase Zoo visitor awareness concerning conservation, biodiversity and environmental issues;
2. To expose Zoo visitors to the cultural aspects of West and Central Africa;
3. To assist in interpreting African wildlife to Zoo visitors;
4. To use a living history approach to interpret the *Africa Rain Forest* exhibit using *Kongo Rangers*.

From September 1989—February 1991, a formative evaluation process was used to shape the design of the *Kongo Ranger Station* and the exhibit's interpretive program. In order to assess the *Kongo Ranger Station*'s effectiveness, a preliminary summative evaluation was conducted in July and August, 1991. The goals of the study were to determine why and how the exhibit works, to evaluate how successful the exhibit was in attaining its objectives, and to collect information to modify the exhibit for increased effectiveness. A multi-method, multi-trait study was done using visitor exit surveys, focal sampling, and Kongo Ranger Questionnaires.

## Formative Evaluation

### Introduction

In order to guide and shape the design process for the *Kongo Ranger Station* and the interpretive program for the *Africa Rain Forest* exhibit, a series of interviews and meetings was held. The formative evaluation process began in September, 1989. Zoo staff, experts, Zoo visitors, project designers and a fifth grade school class focus group were major participants. A scale model of the *Kongo Ranger Station* with design drawings was the basis for discussions. The goal of the formative evaluation process was to test and modify selected aspects of the interpretive program and *Kongo Ranger Station* design with staff and community members for production of a successful display. The following were key points of the process:

- *Kongo Ranger Station* program/concept treatment review with Zoo staff and architects.
- Review design drawings for *Kongo Ranger Station*: Cargo Box area, office and land rover.
- Develop and review interpretive program.
- Build *Kongo Ranger Station* scale model.
- Test design/program concepts with visitors using model.
- Write draft copy for animal I.D. signs and *Kongo Ranger* signs and staff review of draft copy.
- Conduct focus group sessions with Scott Elementary School students.
- Design review of Ranger's office—meetings with staff and volunteers.
- Exhibit design review with cultural advisors and Portland's West African community members.
- Final design approval for Cargo Box area.
- Final design review of Ranger's office Zoo staff.

## Results

Without the use of this process, many design options would not have been made available. It is difficult to show evidence that the designs that were changed or eliminated would have been more or less successful than the ones used in the display. The process had a positive public relations effect. The process allowed a diverse group of community members to be involved with their Zoo and help create a successful exhibit.

## Conclusions

The formative evaluation for the *Kongo Ranger Station* and interpretive package was exhausting, labor-intensive and time-intensive. The final product reflects the collective energy used to positively modify and shape the design. In order to affect improved cost-efficiency, I suggest a formative evaluation component integrated with the request for proposal for all projects.

## Focal Sampling

### Introduction

Concurrently with the exit survey study, a focal sampling study was conducted at the *Kongo Ranger Station*. The goal of the study was to observe and code visitors as they visited the *Station*, recording demographic information, interactions at pre-selected points, and time spent at each point.

## Method

A stratified sample of 75 visitors was randomly observed and coded using focal sample methodology. Inter-rater reliability was tested.

## Sample and Demographics

- 22 adult females (18 and older)
- 17 young females (7-11)
- 24 adult males (18 and older)
- 12 young males (7-11)
- All visitors observed were Caucasian

## Results

- 94.6% went into the *Ranger Station* office; 92.5% interacted with displays inside the office
- 87.7% did not go into the Land Rover.
- 64.6% used intended traffic flow route, entering at the oil drum.
- Only 24.3% interacted with the gorilla skull.
- 56% did not stop at the cobra box and most did not go inside. Children were more likely to go inside the box than adults.
- 81.8% did not go to passport stamping machine or interact with it.
- The range of time spent in the *Kongo Ranger Station* was between 4 seconds to 24 minutes. The mean time spent was 4.8 minutes. 69% of adults spent less than 5 minutes, and 51.5% of children stayed more than 5 minutes.

## Conclusions

The Ranger's office was very popular—especially when a living history program was going on. As a result, crowding was found to be a problem. Visitors had a difficult time accessing each display because of other visitors. Maybe a peak visitation sign should be posted. An advanced organizer may help, and more signs could help exhibit interaction. The time spent in the exhibit by visitors was not spent directly interacting with the exhibit. The exhibit was more attractive to children than adults. The data collected showed no significant variability for age or sex.

## Exit Survey

### Introduction

An exit survey was conducted near the exit in the *Africa Rain Forest* exhibit. Twenty-five multiple choice statements were used. The goal was to collect demographic information and to assess Zoo visitor recall concerning the *Kongo Ranger Station*.

## Procedure

Two Zoo staff members were surveyors. The questions were tested before use in the study. The surveys were completed between 3pm and 5pm on seven days in July and August. The exit survey was done concurrently with the focal sampling study. Using a pencil and a clipboard, visitors were asked if they visited the *Kongo Ranger Station*; if they had, they were asked to complete the survey without assistance. Demographic information was recorded, including sex, age, and race.

## Sample and Demographics

A purposive stratified sample was used. The sample reflects data collected by the Zoo's marketing department. One hundred thirty-five visitors were randomly selected. This sample consisted of the following:

- Sex** • 62 females  
• 73 males
- Age** • 101 adult (18 and older)  
• 32 young (7-11 years old)
- Race** • 128 Caucasians  
• 3 Hispanic  
• 1 Black  
• 1 Native American  
• 2 Other

## Results

- 56% listened to Kongo Ranger presentation.
- 88% touched animal skins.
- 31% touched the *Wall of Hands*.
- 33% saw pile of tusks, 35% did not see them, and 30% did not remember.
- 25% recalled that French was used in the signs and 61% did not notice this language.
- A high memory response was given for items in filing cabinets (53.7%) and on bulletin boards (59.7%).
- Items in the desk were difficult to access; only 21% looked in desk drawers.
- 65.3% did not see items behind the chain link cage.
- 86.8% did not see the Ranger's diary.
- Only 18% sat in the Land Rover.
- 64.9% saw the cobra in cobra crawl-through cargo box.
- 59.3% did not touch the bobo (gorilla) skull.

- The box and barrel signs had low recall—48.8% to 68.8% did not see them.
- Most visitors sampled did not smell the eucalyptus box; 27.8% did.
- 65.9% recalled there were fewer U.S. virgin forests in 1990 than in 1850.
- 66% recalled that Metro Washington Park Zoo was involved with species survival programs.
- 61% did not stamp their passport at the *Kongo Ranger Station*.
- 91% recalled or knew that the main reason for elephant poaching was for ivory.
- 88% said they would take action to help rain forests.
- 35% said they wouldn't buy wildlife products; 9% said they would recycle; and 8% would plant a tree.
- 55.2% said their feelings had changed about the rain forests after visiting the exhibit; 27.6% said they felt the same; 8.9% said no change; and 8.2% didn't know.
- The responses were highly favorable for educational value, with ratings of 4.4 out of a possible 5.
- No major differences in responses were noted in relationship to age or sex in the survey study.

## Conclusion

An encouraging response was that 88% said they would take action to help rain forests. It is difficult to know what the results of this study mean without further testing. Observation found that children under 7 were most likely to go inside the Land Rover and use other parts of the exhibit. Response to the educational content was very high. Crowding was a major determinant of whether or not visitors had the opportunity to see each part of the exhibit. The results from this study provide opportunities to set up experiments for potential exhibit modifications.

## Kongo Ranger Questionnaire

### Introduction

Kongo Rangers are interpreters for this exhibit. Paid and volunteer staff performed living history and animal presentations for visitors. Kongo Rangers made minor changes to the office to meet interpretive needs. Also, they were asked to monitor Zoo visitor behavior. A questionnaire was completed by Kongo Rangers to record questions asked about the exhibit and to highlight their observations. The following is a sample of their questionnaire entries.

What sort of comments and questions do visitors ask about:

**Ranger Station Office:** "Are the skins real?;" "Where are skins from?;" "Need more benches;" "Need stools for children to see into top part of filing cabinet."

**Cargo Box Area:** "Is the cobra real?;" "Where is the passport stamping machine?"

**Pile of Tusks:** "Are they real ivory?"

What comments have you overheard visitors say about the *Kongo Ranger Station*? "The best exhibit they've seen;" "How did you get someone as authentic as Akwasi?"

What is the most frequently used traffic flow through the *Kongo Ranger Station*? "station--->land rover--->cargo boxes--->exit;" "animal skins--->desk--->file cabinets"

## Conclusion

The Kongo Rangers were given a lot of flexibility in the use of the office. Rangers installed the animal skins daily—which was very popular with zoo visitors. Many changes were made to the exhibit due to their constructive feedback about visitor behavior.

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