

Chapter 23

FOUR YEARS OF VISITOR EVALUATION AT THE ANNISTON MUSEUM OF NATURAL HISTORY

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What It Is—How It Began

The University/Museum Collaboration

Visitor evaluation has always been a gift of sorts at the Anniston Museum of Natural History. Since 1985 the Museum has been an open laboratory for the Psychology Institute of Jacksonville State University. Without the initiative of Dr. Steve Bitgood and his colleagues, evaluation at the Anniston Museum would be very limited indeed. The Anniston Museum is a medium-sized museum consisting of approximately 50,000 square feet, of which 30,000 is devoted to exhibition space. It is a municipal museum with an operating budget of \$600,000 with a 1988 visitation of approximately 90,000 people. This number is significant considering that Anniston's population is only 30,000! With exhibits and programs attracting three times the sponsoring municipality's population, the Anniston Museum would be hard pressed to conduct evaluation on its own with its fluctuating 25 member staff.

As with many such relationships, the collaboration between the Museum and University began through the back doors of both institutions. During a social gathering while enjoying cookies and beer, I became aware that Dr. Bitgood was already involved in the study of visitors to exhibit-related facilities and their environments. The mutual benefits of collaboration were immediately apparent and within the week we were discussing the objectives of our first evaluation.

Considering the structures of a University and a Museum, I believe this "back door" approach was the most facilitating. University professionals, while responsible to their administrators for the sum of

their work, are usually free to pick the specifics of their projects themselves. It is not the custom for University administrators to choose professional projects for faculty.

Research on attitudes towards evaluation by Bitgood and Carnes (1987) showed that museum directors do realize that evaluation is important (although they were less likely to feel that evaluation should be included in the regular budget). However, the initiative to begin evaluation is more likely to be taken by a non-director. Given the varied and numerous responsibilities of a director, it seems only natural that a non-director would be more concerned with the evaluation of exhibits.

Once the logistics of an evaluation are determined and staff members are enthused about implementing it, it is advisable to go through the "front door" and obtain the "blessing" of directors and administrators. The money and time spent by faculty and staff on evaluation is the proper concern of administrators!

Advantages of External Evaluators

Having outside evaluators does have some distinct advantages. Professionals involved in exhibition-type facilities sometimes have difficulty seeing things from the visitor's perspective. Being so close to the everyday routines of a museum, and being saturated by the experiences of museum environments and the museum sub-culture might lead the evaluation toward an overly subjective path. An outsider can bring fresh ideas and the necessary objectivity to an evaluation project. Good evaluation requires a knowledge of scientific methodology to determine what findings are most significant. Inexperienced evaluators may innocently find themselves interpreting the data as support for what they already believe.

Design of an Evaluation- Its Communication Network

Director's Viewpoint

Communication between designers and evaluators must be looked at from an overall perspective. All the players in evaluation stand to benefit from the communication network. All the players should have "ownership" in the evaluation both in the formative stages and in the sharing of results. Visitor research can be inhibited by egos, turf control, and the lack of initiative. All of the players in evaluation must remain sensitive to the other players' concerns.

The production of every museum program or exhibit has deep seated roots in the trustees, staff, community, and volunteers. The Directors of museums must be concerned with the threatening nature of evaluation. To suggest that the efforts of these people may be anything but perfect is

a invitation for conflict. Christopher Reich (1988), the Director of the Anniston Museum of Natural History, has noted that the threat of evaluation becomes real when the terms "success" and "failure" are introduced to the process. He suggested that evaluators speak instead of "degrees of success." The director must also be concerned about the competition for funding that all important programs deserve. It is inherent in the director's position that he/she receives much of the credit for work being done by others behind the scenes. Such is usually the case with evaluation. However, researchers who are committed to evaluation will support its promotion regardless of who gets the credit.

Departmental Viewpoint

In which department would the administration of evaluation be most appropriate? And does the most appropriate department possess the enthusiasm to initiate it? What department does not stand to benefit from evaluation? A marketing department certainly needs statistical analysis—who's coming and who's not. The education department must know if visitors are learning what they intended or if they are learning anything! Visitor studies can also pinpoint vulnerable areas in security. The design department needs feedback from visitors to determine if the visitors are receiving an aesthetic experience—a comfortable experience—and if visitors can easily find their way through the exhibits.

Designer's Viewpoint

In the introduction to Larry Klein's (1988) book *Exhibits: Planning and Design*, Albert Woods, who was engaged in the master plan and complete redesign of the Henry Ford Museum, described the designer's challenge as being one of architecture, interiors, graphics, photography, audio/visual media, and theater. He emphasized that exhibition work is not primarily about design—that it is about communication. In museums it is also about presenting the object as "precious" and about presenting models of the world—real, abstract or imaginative. Models are designer's most frequently used tools for working out inherent problems of developing projects. The modeling should go beyond the 3-D scale representation to include the practice of formative evaluation as outlined in Chandler Screven's goal-referenced approach (1976). This allows exhibit components to "go through the motions" before committing to the expense of a permanent installation.

Designers consider themselves the aesthetic guardians of exhibitions. Design aspects may be applied in a subtle or abstract manner which the visitor may not even be aware of. The Anniston Museum's exhibit *Attack & Defense* has an overall contemporary feeling to it. Its goal is to help the visitor interpret the complex "eat or be eaten" relationships of North American animals including chemical, behavioral, and physical aspects of predatory relationships among animals. The scripts are

accompanied by rips of color which are coded to the chemical, behavioral, or physical aspects. The walls of the exhibition area combine angled, sharp shapes with rounded walls (The angled, sharp shapes represent attack or penetration while the rounded walls represent defense or deflection). A mural introduces the exhibit and is hung above the visitor in a cantilevered fashion to create a feeling of tension. Some of these applications are more subtle than others and I'm not about to tell you that I think any visitor picks up on why these elements were chosen in the design. I will insist that these elements do contribute to the visitors opinion of the attractiveness of the exhibit. The evaluation committee should be sensitive to the designer's need to give an exhibit its ambience by applying design components that may not have an obvious tangible meaning to the visitor.

Empirical results of visitor research and evaluation have provided guidelines for designers to formulate criteria for an effective exhibit. Bitgood and Patterson (1987) suggested that exhibit design principles be organized into three categories: exhibit object factors, architectural factors, and visitor factors. While these principles are based on a combination of research and speculation, it is all "food for thought" for every exhibit designer.

One of the major concerns of designers is orientation and traffic flow. The literature of visitor evaluation offers a body of notable work on this subject. Bitgood and Patterson (1986) divided orientation principles into three stages: pre-entry, within the environment, and exiting the environment. Again, mandatory reading for designers. The Anniston Museum has recently tried to focus more on the pre-entry stage of orientation. This has worked especially well on large groups of visitors, particularly school groups. Tour coordinators at the schools are sent packages of information including suggested curriculum topics, activities, rules of the museum, and a tour confirmation. Once these groups arrive at the museum they are gathered into an auditorium for a follow-up on this information before entry into the museum exhibits area. This has resulted in well-behaved groups that seemingly are able to enjoy the total museum experience much more completely.

Hands-on and interactive exhibits are popular buzz words in contemporary exhibition design. If the visitor can't push it, feel it, ring it, or smell it, it is just not state-of-the-art. The level of technology ranges from simple play activities to computers and scientific instruments. However, care must be taken to guarantee that the activity actually functions as a communication device and that it teaches something. Jenkins (1985) comments in his survey of interactive technologies that, "A device may work and prove very popular but if it does not build respect and understanding for life, then we have succeeded technically and failed philosophically."

Larry Klein (1986) notes in his book on exhibit planning that evaluation can be applied to the exhibit planning process if time and budget allow. I must challenge this statement. There is too much to lose in the effectiveness of an exhibit if it is never tested. Exhibit design teams seldom have all the answers. We must make time and money available for evaluation not as an entity of its own but as an essential step of every exhibit's development. The question should not be to evaluate or not to evaluate. Rather, the question should relate to the "what, when, who, and where" of evaluation.

I would like to take this opportunity to suggest some areas where visitor researchers and evaluators may fill a void of information. Color has long been a source of controversy among exhibit designers. While some may prefer a parsimonious, pristine color scheme so that the exhibit environment does not upstage the exhibit content, others maintain that the exhibit environment should have a dynamic, emotional effect on its visitors. The same question can be asked of the extent of graphics as tools of ambiance.

Visitors are seldom aware that light damages collections or that museums are charged with preserving collection objects for generations to come as well as sharing collections with the general population. I am curious to know the extent of the visitor's ignorance to the museum's role as conservators.

Research conducted in the commercial environment by Gerald Tellis, as reported by William Allman (1989), shows that consumers are more likely to buy from emotion than from rationalization. That is, a consumer may say he purchased a car because it was dependable but in reality it was bought because it made him "feel like James Bond or an oil tycoon." Further research by Thorson, as reported by William Allman (1989), has shown that putting people through a range of sad and happy feelings seems to work best. I think it would be possible for designers and evaluators to test these theories within the exhibit environment. Of course, the objective would be to stop the visitor long enough to "create understanding" instead of selling a product.

Evaluator's Viewpoint

Most exhibit design teams consist of curators, educators and designers. Just as evaluation must become an integral part of the exhibit design process, evaluators must become a part of the major team players. When dealing with researchers, designers must be aware that the questions that an evaluation answers must not be totally subjective to the designer. The researcher more than likely will have conducted similar research and may want additional research to parallel or compliment it. Even if some of the questions seem whimsical, the designer must accept proposals with an open mind.

Visitor's Viewpoint

I have mentioned how important objectivity is in evaluation. What about the other end of the rope? What about complete subjectivity? I would suggest that the input of an individual immersed neither in evaluation or exhibit design would be beneficial. Front-end analysis (e.g., Miles, 1988) attempts to tap the knowledge, interest, and misconceptions of visitors before the plans for the exhibit have been finalized. More work in this area is needed.

Conclusion

With the exhibition development committee consisting of directors, curators, designers, educators and evaluators the soil is fertile for seeds of tension. Larry Klein (1986) stated that, "Creative friction should produce light rather than heat." Communication between museum professionals in different disciplines is occurring more often today than ever before. I believe we must work to continue to strengthen these relationships.

Evaluation Projects

Audience Survey

An initial survey was conducted by Bitgood, Patterson, and Nichols (1986) on visitors to the Anniston Museum. We wanted to know the usual demographic information, the frequency of visits to the museum, how visitors found out about the museum, the time they spent at the museum and their opinions about the exhibits, such as which they liked the best or least, what they would come to see again, and what needed to be improved. They were also asked about their overall museum experience.

The survey was conducted twice—once in 1985 with a sampling of 136 visitors and in 1986 with a sampling of 176 visitors. These surveys provided us with consistent and surprising results. Two-thirds of the visitors to the Anniston Museum were visiting for the first time. Billboards and word of mouth were the most common promoters. The majority of visitors spent 31-90 minutes at the museum. Our *Designs for Living* exhibit (an ornithology collection) was rated by visitors as either the least or the best liked exhibit. One of the most design and production intensive projects that the Anniston Museum has undertaken was the installation of the *Alabama Cave*. The cave proved to be an extremely popular exhibit—but no more so than an area where we display two Egyptian mummies where we have done little except putting them on display. The survey also brought immediate attention to our orientation problems.

Semantic Differential

Understanding the public's attitudes towards museums gives designers insight on the type of images and experiences that enhance visitors' initial and return visits. A study using the semantic differential on public attitudes toward museums parks and zoos that was conducted by Bitgood (1987) and Bitgood and Thompson (1987) using bi-polar adjectives developed by Harris Shettel (personal communication) concluded that first-time visitors viewed science museums as "adult-oriented", "bland", "dead", "formal", "complicated", "slow", and "work." In contrast, zoos and parks were considered more "child-oriented", "spicy", "live", "informal", "simple", "fast", and "fun". In the past decade the direction of museum exhibits have begun to change these stereotypes. Apparently we are achieving some success at the Anniston Museum of Natural History since after visiting our museum visitors changed their perceptions to more "child-like", "spicy", "informal", "simple", "faster", and "fun". We still need to work on the "dead" perception.

Lighting in the Cave

The level of lighting in the Alabama Cave (Bitgood, Pierce, Nichols, & Patterson, 1987) was interesting to study. The goals of the study were dictated by questions unique to an exhibit of this type. When recreating a natural cave how do you introduce an unnatural variable such as light? The museum went to great lengths to make the cave as natural an experience as possible. Water chilled to 57 degrees runs over most of the formations and cooled air blows from blind passageways. The challenge was to provide enough light for visitors to find their way and to see the formations in the cave without taking away from the experience one would feel upon entering a dark real cave. The purpose of this formative evaluation was to determine which level of lighting produced the longest viewing time and the greatest visitor satisfaction.

It was assumed that longer viewing times would indicate increased levels of visitor satisfaction and accomplishment of the objectives of education, aesthetics, and entertainment. Data from observations during three levels of lighting were recorded on a total of 223 adults and 118 children. Dimmers were installed on all of the lighting equipment in the cave. The cave is divided into an entrance room which was lit from 0.5 to 1.0 foot candle. A foot candle is a standard measure of illumination equivalent to that produced by a standard candle at the distance of one foot. Three average levels of lighting were used in the cave interior, they ranged from .012, to .030, to .089 foot candles. The difference in the levels of lighting was not considerable, yet this affected the behavior of visitors significantly. Exit survey information was also used in this study.

The medium level of lighting was observed to cause the longest viewing times and prompted reports of better viewability, greater ease of

understanding, and greater dramatic appeal of the exhibit. This is significant because the results from both the visitor observation and the survey reports agreed with each other. These results were also important because the changes could be made without any additional cost to the exhibit.

Instructional Signage ("Cave Dark Adaptation" & "Find the Animals")

Research was also conducted on instructional signage in the cave (Bitgood, Nichols, Patterson, & Pierce, 1986). After the museum had installed an extensive display of educational back-lit graphics and scripts, it was obvious that visitors (especially children) were not spending much time observing them. All of the scripts were placed at the entrance of the cave so as not to distract from the cave's realism. The designer's had incorrectly surmised that visitors would spend considerable time in the script area which would allow their eyes to adjust to the low lighting conditions. Also as visitors went through the cave, they were not noticing animal mounts and habitats tucked away into the niches of the cave. The goals of this study were to see if these flaws could be remedied.

Two inexpensive (actually the word "cheap" would apply here) signs were developed. One that explained that it took almost 20 minutes for visitors' eyes to totally adjust to the dark (which was illustrated with simply a pair of eyes). Another that specifically asked the visitors if they could find the animals (which were illustrated and listed). The signs were designed with few words, large type (36 point) and illustrations. The signs were placed directly in the visitors' path. Data were taken first without signs for a baseline, then on each sign while presented in isolation, later with both signs together presenting the dark adaptation sign first, and finally, together with the animal sign presented first. Time that the visitors spent in the entrance room and cave interior were recorded. Observers also recorded any significant verbal comments expressed by the visitors and in an exit interview, asked visitors about the animals (where & how many). A total of 645 visitors were observed.

Regardless of placement, the animal sign was read more than the dark adaptation sign. The percentage of visitors who read the dark adaptation sign dropped significantly when it was placed after the animal sign. When the animal sign was displayed, the average number of animals found increased from 1.2 to 4.0. When the dark adaptation sign was displayed visitors spent more time in the entrance room than in the cave, while the reverse was true with the animal sign. The animal sign resulted in a decrease in time spent in the entrance room—even less than during baseline. There was a significant correlation between the amount of time spent in the cave and the number of animals found regardless of which sign was displayed. The variables involved in this study leave much room for speculation and make it difficult to specify general principles.

Each sign condition produced a different effect. Was the topic or the nature of information versus an activity the controlling factor in the animal sign being more effective? The animal sign resulted in more animals found but less time in the entrance room. In effect, did this sign cancel its value out? Comments did suggest that the visitors found the activity of searching for animals more enjoyable. Placing the animal sign after the dark adaptation sign appeared to reduce the effects of the animal sign. The results seemed to suggest that the dark adaptation sign was ignored in the two-sign condition. As a designer, I have the luxury of being able to take satisfaction in speculation. I would suggest that the design layout of the entrance is the culprit here. The entrance scripts and the actual entrance to the cave share a space. Once visitors see the cave entrance the anticipation to enter overcomes visitors desire to read all of the available information. It would be nice if we could evaluate again with a separate entrance room, one isolated from the view of the cave.

Manipulation of Scripts

Several label characteristics were also studied within the area where the two Egyptian mummies are on display (Bitgood, Nichols, Pierce, Conroy, & Patterson, 1986). Since this area is little more than a public storage area for the mummies, the number of existing variables is minimal. Variables studied included number of words per label, size of the letters, size of the label's background, presence of illustrations with labels, and the proximity of labels to the exhibit objects. Data were recorded on the percentage of visitors who stopped to read the labels, the duration of label reading; the total time in the exhibition hall, the time spent viewing the exhibit objects, and performance on a quiz which tested knowledge of material presented in the labels. The results showed that three of the variables had a significant impact on visitors: the number of words per label, the size of the letters, and the proximity of the label to the exhibit object. Label reading was significantly increased when the number of words per label was reduced from 150 to 50 words, even when the 150 words were split into three labels. Label reading was also increased by the larger letter size and by moving the labels closer to the exhibit objects. In addition, label readers spent more time viewing the exhibit objects than non-readers.

Changing Exhibits Gallery

One of the most frustrating responses from any potential visitor is for them to say, "I've been to see the museum once-three years ago." One attempt to attract these visitors back is by maintaining an active changing exhibits schedule. Three successive temporary exhibitions were evaluated by Mylane Perry and Stephen Bitgood (1989) to determine their visitor drawing power and to evaluate the circulation patterns of visitors within the Changing Exhibits Gallery. The three exhibits were *Keepers*

of Culture, an exhibition of contemporary Indian art by Indian artists curated by the Anniston Museum and sponsored by the Alabama Humanities Foundation; *Treasures from the Museum Collection*, an exhibit of rarely exhibited and recently accessioned objects from the Anniston Museum's collection; and *The Dinosaur Show*, a traveling exhibition of artists' conceptions of dinosaurs sponsored by the Association of Science & Technology Centers. Observational measurements and survey information were taken. The results showed that more people seemed to be aware of the *Dinosaur* exhibit even though it received no more promotion than the others. A high percentage (69-74%) came specifically to see the *Dinosaur* exhibit. One may speculate that the appeal of dinosaurs generated greater interest.

The highest overall rating by visitors was given to the *Treasures* exhibition. An interesting point considering this was the only exhibit which did not require shipping costs and fees.

Visitors from all three exhibitions reported more interest in wildlife exhibitions than any other category. Also, the arrangement in all three exhibitions determined the probability that objects would be viewed. Placement of objects in the center of the rectangular gallery resulted in a considerably lower percentage of viewing than those on the periphery.

More visitors were attracted to the Changing Exhibits Gallery when supplemental music was played—more support that auditory stimuli have a useful drawing effect.

Application of Results

Attack & Defense

The Anniston Museum's newest permanent exhibition is *Attack & Defense* which models the "eat or be eaten" behaviors of various North American animal species. As a result of the application of principles learned through the continuous evaluative projects at the Anniston Museum, this exhibit has enjoyed exceptional popularity and effectiveness with visitors.

Formative evaluation of labels insured that they were easily understood, remembered, and had a high level of interest to the visitors. Visitors read labels in this exhibition considerably more than in any other area. Label reading varied from 36% to 80%.

In another study Bitgood, et al (1989) hypothesized that:

- Exhibits with moving, live species would attract the most visitors.
- Larger exhibit objects would receive more attention than smaller exhibit objects.
- Objects/Labels placed higher than eight to nine feet would attract less visitor attention than objects within the visitors' ordinary line of sight.

- Exhibit labels that are "out of position" (i.e., require turning around to read) would attract less visitor attention.
- The greater the number of words in an exhibit label, the less reading it would generate.

The live honeybee display had constant motion and generated the longest viewing time of all exhibits. Snakes—only when movement was occurring—showed this pattern also.

Excluding the honeybees, two of the three largest exhibits produced the longest viewing time.

Labels judged to be "out of position" were exchanged with those directly in line with the traffic flow. The percentage of viewers reading correlated with the position, not the content of the labels. This clearly showed that position is a powerful factor in attracting visitor attention.

The results demonstrate a very successful exhibit from the visitors perspective. Predictions based on previous research were generally confirmed. Size, movement, novelty and position were all highly predictive factors in attracting visitor attention.

Conclusion

From the time of the early studies of Melton in the 1930's, the seeds of evaluation were planted but it seemed that something aborted the seeds' germination for a time. Except for a few random studies, it was not until the late 60's that visitors were systematically evaluated. In the past several years it seems that evaluation has taken root and regained its momentum. Judging by the response of delegates to this conference it is flourishing and is here to stay. As a designer I am ready to harvest the results of all your efforts.

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