

## Chapter 17

# PARAMETERS FOR CONSIDERATION IN THE PLANNING AND DESIGN OF A NEW EXHIBIT- ARCTIC CANADA

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### Introduction

Careful attention to visitors' backgrounds, social groupings, behaviors and motivational characteristics forms an essential stage in the planning of a successful exhibit. This paper will review some of the parameters which influence learning in informal environments and their application to the design of a new exhibit at the Vancouver Aquarium-Arctic Canada.

The Vancouver Aquarium is a world class facility, committed to the goals of education, entertainment, research and conservation. It attracts nearly one million visitors each year and enjoys a strong membership of 60,000 individuals.

In the fall of 1988, the Aquarium announced its plans to create a new exhibit area entitled Arctic Canada. In addition to a larger, naturalistic enclosure for the Aquarium's belugas (whales), the new development would include a large underwater viewing gallery and an above-ground exhibit area.

The challenge of creating brand new exhibit areas brings both excitement and apprehension. In exhibitry, new is usually synonymous with different. Each exhibitor strives to use state of the art design. Yet, how can we be certain that our new approaches will yield improvement?

This paper deals with a number of parameters whose consideration will provide a more reliable basis for making the kinds of decisions that exhibit planners must make.

## Rationale

Screven (1987) provided an excellent overview of the planning and development stages of exhibit design. He clearly stated that audience analysis should parallel message development in the important initial stages of planning. It has been long acknowledged that actual audiences are demographically heterogeneous. Yet, if we look at exhibit designs, there is often a clear assumption that visitors are homogeneous in their behavior (Miles, 1987). Traditionally, exhibit designers have paid little attention to "Who" they were designing their exhibits for, focusing far greater energy on what the message would contain.

"The process of exhibits is different from the naive view of communication which would simply take science—whether as a body of facts or as a process—and present it straight to the public. Curiously enough, this is the unproblematic view of communication often taken by curators when wanting to present their research via exhibits" (Miles, 1987).

Failure to recognize the integral connection between the message and the audience has resulted in exhibits which do not meet their learning objectives. Often, it is the viewers frame of reference which has been discounted in the planning process. Screven (1987) cautioned that what viewers "understand" is influenced as much by their background knowledge and preconceptions about an exhibit's topic as by the exhibit itself. "It is common to find visitors using exhibits to reinforce their existing incorrect interpretation" (Carey, 1986).

## Demographics of Aquarium Visitors

An essential step in linking exhibit objectives to visitors' preconceptions and expectations is determining who a facility's visitors are. In an effort to gain a more realistic view of their prospective audience, the Vancouver Aquarium conducted a visitor survey on 1000 visitors from July 18 through August 4, 1988. This time period provided information about both weekday and weekend visitors during the busiest season of the year. The survey was designed to provide basic visitor information such as: age, sex, education, language spoken and read, and size and composition of visiting groups.

The findings of this survey were compared to those of a British Columbia Institute of Technology (BCIT) survey which was conducted at the Vancouver Aquarium between January and April 1981 and another BCIT survey which was conducted between August and September of 1981.

It is interesting to discover that the demographics of Vancouver Aquarium visitors have remained virtually unchanged since 1981. The profile of a typical aquarium visitor is a male or female (slightly weighted in favor of females) between the ages of 25 and 35 whose occupation is listed as professional (followed by student and homemaker) who resides in Vancouver, British Columbia, Canada. This well-educated individual possesses a high school degree and usually some post-secondary experience. He or she comes to visit with members of his or her family. Most often, the family consists of two children between the ages of six and twelve. The group prefers to speak and read English. These findings are consistent with those reported by Greene (1988). In her portrait of the average North American zoogoer, she describes the most common as one parent with one or more children. On weekdays, mothers proliferate. On weekends, fathers are sighted. Zoogoers tend to have more education and larger annual incomes than the population at large.

The significance of the family group in these visits should not be underestimated. Diamond (1986) concluded that "learning...does not occur only or even primarily as a result of the interaction between individual visitors and the exhibits" (p. 152). The sharing and social circumstances that comprise the experience form an essential part of the learning process. Learning and sociability are inextricably related (Chase, 1975).

## Applying the Demographic Information

How can this knowledge of family group interactivity aid the exhibit designer? For one thing it has a strong significance on the size and placement of the exhibits. Because visitors tend to come in family groups, a group of three to four people should be able to view an exhibit at one time (McCoy, 1987). Although surrounded by people, families in informal learning centers tend to function as isolated groups. Exhibits that require more than three individuals to manipulate, therefore, would not be expected to be heavily utilized.

Family roles have a bearing on the way in which and exhibit is experienced. Parents read graphics more and try to explain concepts to their children through both telling and showing. Children manipulate exhibits more and transmit information about the location, operation and description of the exhibit phenomena (Diamond, 1986).

Exhibits that provide both items for manipulation and explanations of the observable outcomes will encourage the mutual exchange of information that is essential in family learning.

The need for children to manipulate and interact with objects during the learning process has not been adequately answered in most zoos and aquariums. Perhaps this is why children in these settings spend a large amount of time trying to make the animals "do" something.

In a unique attempt to stimulate people/beluga interactions, the exhibit designers have incorporated a bubble machine into the new Arctic Canada beluga enclosure. Belugas are playful animals who seem to delight in chasing bubbles. The bubble machine can be activated by both visitors from outside the enclosure and the belugas from within.

Since parents often assume the role of explainer, the graphics which accompany the animal exhibits should deal with observable animal behaviors. A sign which explains what belugas eat or where they spent their summers may be quite interesting, but it will not help parents to answer the specific, observation-oriented questions that their children watching the belugas will ask.

## The Use of Interactive Exhibits

As it is not always possible or even desirable to have people elicit behaviors from animals, exhibits which are associated with animal enclosures should be designed to include opportunities for manipulation. The success of learning boxes in discovery rooms may provide insight into the potential effectiveness of incorporating handleable specimens and artifacts into the design of Arctic Canada. Rather than placing the boxes in a separate discovery room, a few boxes could be developed and stored in the main exhibit area. Perhaps an ice wall could be created which incorporated the boxes as ice blocks. The excitement of pulling a block from the wall would add to the sense of discovery. The items inside the box could relate to ice: its shapes, properties, uses, microenvironments etc. The idea could be taken one step further, whereby the boxes would form part of the wall of an igloo and the igloo would function as a small discovery center.

By blending the strong attractive power of an animal exhibit with the strong holding power of an interactive exhibit, understanding of a concept should be enhanced.

Interactive exhibits are important for family learning. Their implications for groups of varying compositions are also great. Research has illustrated that knowledge gain is related to exhibit type; as an exhibit becomes more participatory, knowledge gain increases (Peart, 1984). McManus (1987) found that behavior at exhibits was strongly correlated with group composition. Individuals who visited on their own, for instance, were very unlikely to interact with dynamic exhibits. Male/female dyads were also unlikely to participate. Both of these groups were more likely to attend to text. Adult groups were especially challenging as they were unlikely to read the text or interact with the dynamic exhibits unless females were present.

Given the effectiveness of interactive experiences to increase learning, how can informal environments encourage adults to interact with exhibits? Koran, Koran and Foster (1988) suggest that "models can direct

visitor attention and prompt behaviors that increase the number of sensory channels observers use when confronted with a novel stimulus" (p. 41). Arctic Canada exhibit designers could, for instance, use full-sized human cut-outs, videotapes or photographs to model appropriate participation.

The variety of learners and learning styles present in informal learning environments has led exhibit designers to question whether or not exhibits can meet the range of visitor expectations. Csikszentmihalyi (1987) suggests that the answer is to incorporate a range of challenges into every exhibit. Oppenheimer (1972) explains this idea more completely in a wonderful analogy which compares exhibit experiences to sightseeing. Exhibits which yield only predetermined messages are compared to sightseeing on a train that is unstoppable, irreversible and dominated more by the smells, sounds and motions of the train than by the landscape. The best kind of sightseeing, and hence, the best exhibit experience, involves some exploration and the freedom to decide what not to investigate and where to linger. "The more one can become involved with the sights through touching, feeling, smelling and activity, the more rewarding it can be" (p. 979).

Interactive does not mean predetermined. Pushing buttons or lifting flaps does not allow visitors to challenge their preconceptions--preconceptions which are often incorrect or oversimplified (Screven, 1987). The exhibit must allow visitors to use their own knowledge and beliefs and to discover the inconsistencies in this knowledge by making their own mistakes.

An interactive exhibit which challenged visitors to design the ultimate arctic snowsuit would allow visitors to combine their background knowledge of insulation, fabric, and arctic weather conditions with knowledge acquired from interpretive panels. The exhibit could encourage visitors to test their creations against the chill of a cold temperature bar.

## What to Teach

The issue of what types of information an exhibit can effectively teach is extremely important. Even though aquarium visitors are highly educated, Screven (1987) cautions that informal environments are not necessarily the place to teach facts, definitions, technical details or other information which is normally found in classrooms and books.

"The conditions necessary for factual learning (lots of reading, cumulative practice, time, effort, detailed analysis) are seldom present in the open museum environment long enough, often enough or focused enough to achieve these kinds of learning. ...Outcome studies of science museum visits show that few visitors can describe the factual content of the exhibits they have

seen, recognize or define terminology, match animals or plants with taxonomies or make any of the key distinctions provided by exhibit content. Such evaluations have led some to incorrectly conclude that little 'learning' takes place in science exhibitions and that more sophisticated exhibits should be developed to better teach such things" (Screven, 1987, p. 231-232).

Recognizing that aquarium visitors are voluntary learners whose average time spent at an exhibit can be measured in seconds, Arctic Canada designers would be wise to heed Screven's advice. He believes that informal environments are better able to effectively communicate new ways to look at and think about things. They can present ways to explore, discover, ask questions and stimulate a greater self-confidence in science topics and activities. Screven also suggests that informal learning environments are better able to improve motivations and attitudes towards science.

Careful planning may result in an interpretive gallery that is full of opportunities for visitors to experience and discover. These are the experiences that the designers have consciously built into the gallery. Unfortunately, visitors may also experience phenomena that were not only unplanned but that may carry negative or disturbing messages. The aesthetics of the total experience play an important role in message transmission. Coe (1985) provides an unsettling example.

"A sign beside a gorilla exhibit may consciously present a noble creature endangered by habitat destruction in Central Africa, but unconsciously the exhibit seems to present the gorilla as a felon in a barred cage or as an institutionalized deviate in a tiled cell" (p. 198).

## Landscape Immersion

Exhibits which are aesthetically beautiful send positive signals about the animals which inhabit them. The factors which contribute to creating an aesthetically pleasing experience—novelty, complexity, surprise, ambiguity and uncertainty (Berlyne, 1971)—are the same factors which make a zoo experience real (Coe, 1985). These factors play a part in "landscape immersion", a term coined to describe exhibits in which visitors share the same landscape as the animals. Instead of standing on a cement walk looking at a zebra in an African setting, for instance, both the zoo visitor and the zebra are in a landscape carefully designed to "feel" like the African savanna. Invisible barriers separate the people from the animals. The entire setting is designed to look, smell and sound as if one left the zoo and entered the savanna (Coe, 1985).

The new Arctic Canada beluga enclosure will approach Coe's concept of landscape immersion. Two state of the art twenty-five foot acrylic windows will allow uninterrupted viewing into the beluga's habitat. Sounds recorded from the beluga's arctic environment coupled with blasts of cold air could create a sense of being in the northern wilds. The subtly unsettling feeling of being face to face with such large animals and the dramatic beauty of the scene will have a long-term effect on the memory of visitors. The compelling image of beautiful and independent wildlife that is created through landscape immersion will have a powerful effect on visitor perception. Coe believes that it will ultimately leave them more open to the importance of wildlife preservation.

## Orientation to the Exhibit Theme

The last parameter to be addressed in this paper should actually be one of the first. It is placed at the end because its inclusion forms the context in which all of the individual exhibit experiences are understood. The parameter is that of visitor orientation to exhibit theme. In a study conducted at the British Museum in London, Griggs (1983) determined that visitors had a poor conceptual picture of the display's theme. Their impressions tended to consist of isolated facts rather than a coherent story. Lack of orientation devices in the gallery impaired the visitors' understanding of the display's theme.

Unless visitors realize that they are in an Arctic Canada exhibit, they may come away with a number of disconnected ideas about belugas, ice and adaptations. According to Griggs, this danger can be reduced by reinforcing the theme throughout the display.

A survey conducted to determine visitors' preconceptions and misconceptions about the arctic provides an interesting idea for theme orientation in the gallery. Visitors were asked what three words came to mind when they were asked the question, "What is the arctic?" The three most common responses were: "cold," "white" and "icy." Visitors enjoyed answering the question and frequently went on to speculate about what life would be like under those conditions. By incorporating this question into a visual and auditory message at the entrance of the new gallery, visitors would subconsciously carry this framework through their investigations of the exhibits. Following Griggs, the question could be repeated in different locations throughout the gallery to redirect attention to the theme. The beauty of using an open-ended question as a theme orientation device is that it can encompass any of the perceptions of the arctic that visitors may discover in the gallery.

## Conclusion

The importance of audience analysis and its impact on the design of a new exhibit have been highlighted throughout this paper. It is echoed in these words of Miles' (1986, 1987):

"Planning science exhibits requires more than focusing on the accuracy and scientific relevance of their content. Special efforts are necessary to match an exhibit's desired teaching points and the methods for delivering this information to a more realistic view of their prospective audiences."

The challenge now facing the Arctic Canada designers is to establish the main messages of the exhibit and to link these with the audience analysis to form goals and objectives. Screven (1987) warns that no matter how much planning goes into an exhibit design, the only test for its effectiveness is the manner in which visitors interact with it. The important phase of formative evaluation which utilizes feedback from visitor reactions to modify exhibit components, text, interactive features, game simulations, lighting, sound and orientation devices must be given substantial time and attention. Like audience analyses and message development, formative evaluation is critical to exhibit success. It is an area which merits a complete review in a subsequent paper.

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