

Toward an Objective Description of the Visitor Immersion Experience

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We have begun to study an elusive visitor experience called "immersion". To help define this experience we might look at what exhibit designers are attempting to create with "immersion" exhibits. For example, Jon Coe (1986) described the "landscape immersion" approach to zoo exhibits as follows:

"It is an approach where the landscape dominates the architecture and the zoo animals appear to dominate the public. The zoo becomes a landscape with animals. In this approach, the visitor leaves the familiar grounds of an urban park called a zoological garden, and actually enters into the simulated habitat of the animals. The animals remain separated from the public by invisible barriers, but the people do enter the animal's realm and... may even consider themselves to be trespassers in the wilderness home of the plants and animals. Every effort is made to remove or obscure contradictory elements, such as buildings, service vehicles, or anything that would detract from the image or experience of actually being in the wilderness. (Coe, 1986, p. 9)

The landscape immersion approach has come to dominate recent zoo exhibition. Major zoos are installing these "naturalistic" exhibits at a fervent pace. Zoos in Atlanta, Baltimore, Chicago, Columbus, Los Angeles, Miami, Portland, Seattle, Topeka, and many other cities provide excellent examples of the immersion approach to exhibition that Coe describes.

A parallel exhibit perspective has been taking place in other types of exhibition centers. Natural history museums are simulating rain forests, icebergs, caves, Georgia swamps, deserts, and many other habitats in a realistic or naturalistic manner. Science museums are creating exhibits that simulate the experience of traveling in outer space, circulating through the human heart, and other such experiences. Living history museums, on the other hand, attempt to create the illusion of bygone days. Yellis (1990) gives the following description of their goal at Plimoth Plantation:

"What we are after is an environment, both physical and human, so authentic and of a piece, an experience of such critical mass and vitality that it becomes possible for the visitor to discount the annoying, but undeniable, reality that he is not in the past. It becomes desirable for him to relinquish the present on some level, to let go, yield himself to whatever experience he needs to have of the past, and take the initiative in precipitating that experience." (Yellis, 1990, p. 52)

Obviously, the designers' intention of creating an immersion experience and the actual impact of the exhibit may be very different. To my knowledge, no one has attempted to objectively determine the degree to which visitors actually feel immersed in such exhibits. This paper is a preliminary report on a research project that is attempting to explore some of the dimensions of this visitor experience of immersion.

If there is indeed such a phenomenon as the visitor immersion experience, it may be far different than we presume. One of our first questions was whether or not our conception of the "immersion" experience actually matched visitor reports. Our own biases of what we expected to find are as follows:

- We assumed that if visitors feel immersed in an exhibit they will report a feeling of being in the time and place simulated by the exhibit. In the current study, our measure of immersion was the degree to which the exhibit created a "feeling of being in the time and place" as rated by visitors.
- It was believed that "naturalism" or "realism" or "authenticity" of the surroundings is an important aspect of immersion. Consequently, ratings of "feeling of time and place" should be correlated with "naturalism."
- We also felt that the immersion experience is generally a positive emotional experience – that visitors will be excited and aroused by the experience. Consequently, this hypothesis implied that there would be a correlation between "feeling of being in time and place" and ratings of "excitement."
- A fourth assumption was that a walk-through exhibit that totally surrounds visitors will create a greater feeling of immersion than exhibits that use smaller volumes of space and/or that visually compete with other objects in the environment. This assumption suggests that walk-through exhibits should create greater immersion than dioramas or other types of exhibits, particularly those without any thematic background. It also predicted that exhibits with visual competition (i.e., where the visual landscape contains multiple exhibits in view) will create less of an immersion experience than exhibits with little or no such distractions.
- Another assumption was that multiple sensory inputs (i.e., adding sound and touch to visual stimuli) would also add to the immersion experience.

Method

Subjects in this study were 241 visitors to the Anniston Museum of Natural History in Anniston, Alabama. Students from Jacksonville State University receiving course credit during May, 1990, served as data collectors. The project used a rating scale consisting of the following bipolar adjectives: beautiful-ugly, gloomy-cheerful, scary-uns scary, colorful-drab, confused-clear, exciting-unexciting, familiar-unfamiliar, good light-poor light, interesting-uninteresting, natural-artificial, cramped-roomy, usual-unusual, well organized-poorly organized, meaningful-meaningless, lots of information-little information, relaxing-tense, and feeling in time and place-not feeling in time and place. For each bipolar descriptor, visitors were instructed to rate an exhibition area on a 7-point scale in which 4 is neutral (half-way between the two extremes of the descriptor). Six major exhibition areas were studied:

1. *African Plains*. A large area, experienced as a series of dioramas, that includes a collection of mounted animals and simulated vegetation found on the African plains. For example, one of the most impressive exhibits is a large, mounted African elephant placed beside a gigantic baobab tree. Exhibits in this area are accompanied by realistic, thematic backgrounds and sounds. A total of 78 surveys were completed for this area.

2. *African Culture*. This area is a smaller area that includes information, maps, diagrams, and artifacts relating to African culture. There is little attempt to create a feeling of being immersed in an African environment. The objects are exhibited similar to traditional styles of exhibition. In addition, the area features an automatically sequenced slide presentation, an interactive platform (stepping on platform starts African music), and a tribal costume and mask that can be placed in front of the visitor's body while viewing oneself in a mirror. A total of 75 visitors completed surveys on this exhibition area.

3. *Attack and Defense*. This exhibition area was the last to open at the Museum and incorporated results of summative evaluation on other exhibits and formative evaluation of labels. It displays North American animals in the context of open dioramas within a predator-prey framework emphasizing behavioral, physical, and chemical mechanisms for attack and defense. Exhibits are displayed in a realistic manner with prey and predator often in apparent conflict. For example, one of the most dramatic exhibits shows an elk with raised feet defending itself against attacking wolves. Several animals in this area are alive (snakes, honey bees, a black widow spider, and fire ants). In this exhibit 78 surveys were completed. Labels are short, well-placed and have a high probability of being read (Bitgood et al., 1989).

4. *Dynamic Earth*. At the present time the major exhibit in this area is a simulated Alabama limestone cave. This is a walk-through exhibit with molds of actual cave formations presented in a realistic manner. The cave is dimly lit, it is kept cool, and water runs over flowstone formations in an attempt

to maintain the authenticity of the visitor experience. The sound of water dripping is apparently memorable since visitors often reported this experience in a pilot study of what was memorable. Several animals (bats, snake, pack rat, salamander, etc) found in limestone caves are distributed throughout the exhibit. All of the interpretation for this exhibit is placed in an area prior to entering the exhibit. Previous studies have found only cursory reading and viewing of the text and graphics (Bitgood et al, 1987). A total of 88 surveys were administered in this area.

5. *Egyptian Mummy*. This exhibition includes two mummified Egyptians in their burial cases, an x-ray display of the Egyptians explaining evidence of physical injury and probable cause of death, six short labels placed on the wall describing the exhibit objects, and a reconstructed bust of one of the mummified Egyptians. This exhibition area lacks a thematic background for the artifacts on display and offered the least amount of label information in the Museum. Eighty-four surveys were collected in this area.

6. *Bird Hall*. This area contains a large number of mounted birds in Victorian-style cases in some of the earliest diorama exhibits (turn-of-the-century). In addition to attractively displayed exhibits, the recorded sound of birds singing is played over the speaker system. Labels are numerous but do not appear to be widely read, probably because of length, glare, and placement. A total of 78 surveys were completed in this area.

Visitors were approached as they were exiting the Museum and were asked to complete a rating device for one of the exhibition areas. Initially, we tried to have visitors complete ratings of two exhibition areas, but the amount of time to complete these surveys resulted in several incomplete forms so it was decided to rate only one exhibit per visitor.

Results and Discussion

Although considerable data was collected in this study, the major focus of this report is on the visitors' feeling of immersion in the exhibits. Therefore, only results pertinent to this experience will be emphasized. Figure 1 shows the mean ratings for the descriptor, "Feeling in time and place-not feeling in time and place." The lower the number, the greater the rating for the lower end of the bipolar descriptor. Thus, a rating of "1" would be the extreme of "feeling in time and place" and a rating of "7" would be the extreme of "not feeling in the time and place." As expected, *Dynamic Earth* (cave) was rated as the most effective exhibition area in producing the "feeling of being in the time and place." The average rating was 1.9 for *Dynamic Earth*, 2.0 for *Attack and Defense*, 2.1 for *African Plains*, 2.2 for *Bird Hall*, 2.7 for *African Culture*, and 3.2 for *Egyptian Mummy*. Statistical analysis revealed that *African Culture* and *Egyptian Mummy* were significantly different from the other four exhibits, but that *Dynamic Earth*, *Attack & Defense*, *African Plains*, and the *Bird Hall* did not significantly differ from one another.

Since *African Culture* and *Egyptian Mummy* lacked the thematic background present in the other four exhibition areas, the results are consistent with the notion that a realistic background helps to create the "feeling of time and place" or immersion.

Based on the assumption that exhibits which surround you will create a greater feeling of immersion, it was expected that *Dynamic Earth* would be perceived as more immersing than the diorama exhibits (*Attack & Defense*, *African Plains*, *Bird Hall*). However, there was no statistical difference among these four exhibits.

If authenticity or realism contributes to the immersion experience, then ratings of "feeling in time and place" should be correlated with ratings of "natural-artificial". The following correlations between these two descriptors (feeling in time and place/natural-artificial) were calculated:

African Culture:	0.53
African Plains:	0.55
Attack & Defense:	0.37
Bird Hall:	0.34
Dynamic Earth:	0.48
Egyptian Mummy:	0.45

These correlations suggest that a moderate correlation exists between "feeling in time and place" and "natural-artificial" (a correlation of .50 or higher is good). This is consistent with the assumption that perceived naturalism or authenticity contributes to the immersion experience. However, it is important to remind the reader that this evidence is correlational rather than experimental and we can only speculate from these results on what factors contribute to the feeling of immersion.

We can also ask if the ratings of "feeling in time and place" (or assumed immersion) are associated with positive affective experiences. This question can be answered by looking at the correlation between "feeling in time and place" and "exciting".

African Culture:	0.64
African Plains:	0.48
Attack & Defense:	0.51
Bird Hall:	0.31
Dynamic Earth:	0.51
Egyptian Mummy:	0.57

If visitors rate these exhibits as "feeling in time and place" they also tend to rate the exhibits as "exciting". The relationships between these two factors were respectable except for the *Bird Hall* correlation. Exhibits that successfully create a feeling of immersion tend to be exciting as well.

Another way to look at the data is to analyze, for each exhibit area, what descriptors are correlated with "feeling in the time and place." The following table summarizes this analysis:

Area	Descriptors
<i>African Culture</i>	exciting; natural; meaningful; lighting; clear.
<i>African Plains</i>	exciting; natural; lighting level.
<i>Attack & Defense</i>	exciting; meaningful.
<i>Bird Hall</i>	information; organized; relaxed.
<i>Dynamic Earth</i>	exciting; natural; meaningful; interesting; colorful.
<i>Egyptian Mummy</i>	exciting; meaningful; colorful; amount of information

This table suggests that there is no one pattern of relationship between immersion and other descriptors although "exciting," "meaningful," and "natural" are most often associated with "feeling in the time and place." It is likely that factors that create immersion experiences in one exhibit area are different than factors that create a feeling of immersion in other areas. For example, a sound track of birds singing in the *Bird Hall* may contribute to the immersion experience as well as makes the visitor feel relaxed. However, a sound track of animals in the darkened cave (*Dynamic Earth*) might have quite the opposite effect!

Despite the fact that our results were encouraging, there are several problems that must be considered when interpreting our results. First, visitors were asked to rate the entire exhibit area rather than a specific exhibit. Some of the exhibit areas were more heterogenous than others. *African Culture*, *African Plains*, *Attack & Defense*, and *Birds* all included many individual exhibits, some of which were less immersing than others. It is not clear if visitors were responding to the best or worse examples of exhibits or if they were somehow averaging their ratings across individual exhibits within a particular exhibit area. Another problem with this study is the difficulty in drawing conclusions in a complex situation with an absence of experimental manipulations upon which to make causal connections. Eventually, we would like to change exhibit characteristics and see what effect it has on visitor perceptions. As it stands now, we can only speculate. A third problem is the fact that the data was based on a limited number of exhibits. Will other exhibits in other facilities produce similar results?

We continue to be immersed in the study of the immersion experience. Additional studies are either being conducted or planned for the future. We welcome any thoughts or suggestions from readers.

References

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REPORT OF THE AAM VISITOR RESEARCH & EVALUATION STANDING PROFESSIONAL COMMITTEE

Chicago is history and Denver is ever on our minds (at least on the minds of those who are trying to put together a program for the '91 Annual Meeting). But before we relegate Chicago to the dust bin of history, I would like to present some of the things that went on that will have an impact on the future of our Committee.

For example, at our business meeting (attended, in body at least, by 28 brave souls who made it at 7:30 in the morning) our Committee held elections for three of our four officer positions. Two existing office holders, Jeff Bonner (Secretary) and Bea Taylor (Treasurer) ran unopposed and so will continue in their respective offices for another two years. However, Jeff Hayward ended his term as Vice-chair, and Lois Silverman and Minda Borun were nominees for that office. The ballots (both those mailed in earlier and those made out at the meeting) were tallied by Jeff, and Minda was elected in a close count. I think that the nomination procedure worked very well on its "maiden run," and should serve us well in electing a new Chair for '91.

I want to thank Jeff Hayward for his many contributions to the Committee (Jeff is responsible for our new and very attractive Committee brochure, for example), and welcome Minda. Minda, as some of you may know, is one of our earliest and most vocal promoters of, and practitioners in, exhibit evaluation and was a founding member, and later Chair, of the Committee. It will be a pleasure working with her over the next year.

Another Chicago "event" that will affect our future was a motion by D. D. Hilke to add a new member to our Committee officers next year – one who will represent those who are non-voting members of the Committee (mostly Individual Corporate members of AAM). This important group certainly deserves to have a voice in the affairs of the Committee, even if it is a "non-voting voice. This change means that the call for nominations for '91 will include two positions – one for the Chair and one for the Non-voting Member Representative.

Two other decisions were made by the officers of the Committee that will have an impact on our future. The period of membership has been changed, starting in '91, from "annual meeting to annual meeting" to a calendar year basis. This will help to improve and simplify our records since

everyone will be starting their membership at the same time. In addition, it was decided to increase our dues from \$5.00 to \$10.00 per year. Most other committees now charge \$10.00 and one charges \$15.00. It seems only fair that as our activities and functions increase each year that our primary means of support should also increase.

These changes mean that next year in December or January, all current members and as many potential members as we can locate (e.g., readers of Visitor Behavior), will be getting a notice to join for 1991 and asked to pay \$10.00 for the privilege. Start saving now!

As a final note on Chicago, the number and quality of our sessions (including the Poster Session), and the attendance at these sessions, speaks again to the increasing interest shown in what we have to say and offer to the museum community. I hope that we can keep up this momentum and make at least an equally impressive showing in Denver. Barbara Birney (papers and panels) and Randi Korn (posters) are again leading the effort, supported by those of us who are willing to take the time to write proposals and put together panel sessions. We can pat ourselves on the back for Chicago with one hand, but we better use the other one to prepare ourselves for Denver!

Harris Shettel, Chair

REPORT ON THE AAZPA VISITOR STUDIES SPECIAL INTEREST GROUP

We now have 45 members of the SIG from throughout the country. Of the few who returned our survey, all respondents reported two SIG benefits as being "Extremely valuable":

"Opportunity to exchange information among peers"

"Chance to learn more about areas of visitor studies"

The Visitor Studies SIG will be meeting between 1 and 2 pm on Thursday, September 27, at the 1990 AAZPA Conference. At this time we will take the opportunity to explore these benefits. We have had three suggestions for a short workshop at this meeting: labels/graphics; data collection/analysis; and funding for evaluation. If these or other topics are of interest to you, let me know and I will attempt to facilitate a short presentation.

Unfortunately, our SIG meeting conflicts with three relevant sessions (Education Today and Tomorrow, Issues in Administration, and Planning and Marketing). There are several sessions and papers that sound interesting and relevant to visitor studies.

Congratulations to Saint Louis Zoo for their groundbreaking attempt to evaluate the *Living World* exhibits in their magnificent new Education Building. In June, 18 professionals from different specialty areas were invited to participate in a critical evaluation of *Living World* in preparation for a more thorough visitor evaluation. The exchange of ideas and whole process was fascinating!

Steve Bitgood