Memory of Objects, Labels, and Other Sensory Impressions From a Museum Visit

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Introduction

This study attempted to assess recall for three different types of exhibit events: visual (exhibit objects), semantic (label content), and other sensory impressions (sounds, temperature, darkness, touch). These three categories were selected because a pilot study suggested that visitor memories of exhibits appeared to fall primarily into these areas. Visitor studies research has focused almost exclusively on semantic knowledge (e.g., label information), frequently neglecting other types of knowledge. A comparison of recollections for the three types of knowledge across exhibit areas is the major purpose of this study. Included in the study were ratings of vividness of recollections.

Method

Participants were 81 undergraduate students enrolled in psychology classes at Jacksonville State University. They were instructed to visit the Anniston Museum of Natural History over a weekend and to study each of the exhibit areas carefully, document the time spent in each exhibit area by writing the total minutes for each area on a museum map, and turn in the map (with times) in the first class after the weekend. They were not told that they would be specifically tested for recollections of exhibits.

When participants returned to class on Monday, they were given a five-page survey asking them to recall for each exhibit area: (1) the names of objects; (2) label content; (3) other sensory experiences recalled (sound, temperature, etc); and (4) any other memories. In addition, respondents were told to rate how vivid each recollection was (on a scale from 1, lowest to 7, highest). Finally, the exhibit areas were rated on a number of descriptors (e.g., degree of excitement, how memorable, overall rating). Only the recall data will be reported in this article.

The major exhibit areas in the museum were:
(1) *Dynamic Earth* (including a walk-through simulated limestone cave, a replica of a Pteronadon, a mold of a prehistoric fish fossil, and a model of a skull from a terapter-coris).
(2) *Attack and Defense* (North American animals portraying predator-prey relationships).
(3) *Bird Hall* (a collection of small glass-enclosed dioramas of mounted birds).
(4) *African Plains* (open dioramas of African animals).
(5) *Egyptian Mummy* (two mummies contained in their decorated cases, x-rays of the skeletal remains of the mummies, and a reconstructed bronze bust of one of the mummified individuals).

Results and Discussion

The average number of memories per individual for each exhibit area are shown in Table 1.

Table 1
Average Recollections

Area	Objects	Label	Sensory
Dynamic Earth	2.86	0.84	1.96
Attack & Defense	4.89	1.53	1.06
Bird Hall	2.93	0.88	1.23
African Plains	4.11	0.77	1.17
Egyptian Mummy	1.89	1.26	0.53

Results of Table 1 clearly show that, of these three categories, objects are most likely to be recalled. For three of the five areas, label content was least likely to be recalled. In addition, *Dynamic Earth* generated the most sensory recollections.

Exhibits differed in terms of their ability to stimulate the three categories of recollection. Recollections for each category are described below.

Objects. The rate of recollection was not perfectly correlated with the number of objects in an area. The *Attack & Defense* area produced the largest number of recollections of exhibit objects although it had far fewer objects than the *African Plains* which was second in average number of objects recalled. *Egyptian Mummy* generated the lowest number of recalls which is consistent with the fact that it is the smallest space and contains the fewest number of objects. The specific objects recalled tended to be of large size (e.g., elephant, giraffe, bear, pteronadon), or distinctive in some other way (e.g., snakes, live bee hive, interactive exhibits, waterfall in cave).

Sensory Impressions. The walk-through, simulated cave of *Dynamic Earth* created a larger average number of sensory memories (feel of cold temperature, darkness of cave, sound of water flowing over rock formations) than the other exhibit areas which had fewer multi-sensory experiences. *Dynamic Earth* generated the hightest number of memories for sound (65.4%), temperature (61.7%), and (dark) lighting (16.0%). The *Bird Hall*, which plays recorded bird songs through the area, generated the next highest number of sound memories (60.5%). Memories of touch were highest for *African Plains* in which a number of hands-on figures and skulls were available, the *Bird Hall* which contained two interactive exhibits, and *Dynamic Earth* in which one could touch the cave formations and water.

Label content. With few exceptions, recollections of label content tended to be quite idiosyncratic.Only two labels in the *Attack & Defense* area generated more than 10 percent recall: Snake (25.9%) and Bear (24.7%). In the *Egyptian Mummy* area, the most frequent label content recalled was with respect to the gender of the mummies (21%), although the recollection of gender was often inaccurate.

Social class reference (15.4%), X-ray analysis (14.8%), and mummification process (14.8%) were next in frequency. No other label topic generated recollections by more than 10% of the respondents.

Vividness. The relationship between objects recalled and reports of vividness was also of interest. Table 2 illustrates some of this data.

Table 2
Objects Recalled and Vividness Ratings of "7"

Objects	Percent Recalled (total)	Vividness Rating of "7"
Snakes	64.2% (52)	67.3% (35 of 52)
Bears	59.3% (48)	56.3% (27 of 48)
Bee hive	44.4% (36)	47.2% (17 of 36)
Skunk	32.1% (26)	42.3% (11 of 26)

This data shows a clear correlation between the percent of objects recalled and the ratings of vividness. Snakes were recalled by 52 of 81 participants, and 35 of the 52 (67.3%) who recalled snakes gave it a maximum vividness rating of "7." Objects that were less likely to be recalled also had a lower percentage of "7" ratings of vividness. Thus, it seems that objects that create the most vivid memories are most likely to be recalled. It is also noteworthy that the most vivid memories were of distinctive exhibit elements in terms of size (bear), shape (snake), perceived danger (snakes, skunk), and movement (bees). These characteristics are also related to attracting and holding power of exhibits (e.g., Bitgood, Patterson, Benefield, & Landers, 1986)

General Discussion

Exhibit objects which create visual rather than semantic recollections are the heart of most museum experiences. Thus, measures of visual memory should be a part of the assessment process. As expected, the current study found that recall of visual information was superior to semantic or non-visual content. It was also evident that the various exhibit areas produced different rates of memories for the visual, semantic, and non-visual sensory categories. The immersion experience of the *Alabama Cave* in *Dynamic Earth* produced more auditory and tactile memories than other exhibits. The *Attack & Defense* exhibit produced more semantic memory, supporting the conclusion that these labels were well designed.

Current results are at least partially consistent with McManus (1993) who found that visitors memories consisted primarily of objects and things on a written follow-up survey using a mail-back method. Unlike the current study, however, she also found no memories of exhibit content. The difference in results may be due to a longer period of time between the visit and the recollection in the McManus study, and/or to the fact that, in the current study, respondents were prompted for different memory categories by having them list all of their memories for objects/things, for label content, and for other sensory-perceptual experiences. McManus used more of a free-recall technique rather than prompting specific types of recollections.

The findings can also be compared with those of Stevenson (1992) who found that 60% of family memories of a science museum were of exhibits (visual recollections of objects?), 26% were thoughts about and reflections on the science or technology behind the exhibit, and 14% were about emotional feelings connected to seeing and using the exhibit. Recall of objects was clearly superior to other types of memories. Recollections about the science/technology of the exhibit would, we assume, be associated with label content, encompassing semantic knowledge. Thus, Stevenson's data are not unlike the current results.

It is ironic that semantic knowledge, the most poorly recalled and the least attended to, is also the most frequently (and often exclusively) measured type. The current study, along with several others, demonstrate we are neglecting other important knowledge domains in the visitor experience. We should take pains to find better ways to tap these other domains in a way that better captures what is learned in the visitor expereince.

The current study also demonstrates that several types of memories of the museum experience can be tapped by prompting memories associated with specific categories (e.g., objects, label content, non-visual sensory impressions).

It should be noted that the methods for extracting recollections can be structured, unstructured, or somewhere in between. McManus (1993) used a free recall approach by asking respondents to write memories of the museum gallery of interest without attempting to evoke specific types of memories. She noted that the method used by Falk and Dierking (1992) was biased to produce specific types of recollections dictated by their interview format (i.e., with whom did the visitor go to the museum, etc.). The method used in the current study was intentionally biased to produce recollections of specific types (objects, label content, and other sensory impressions). Obviously, we could have evoked other types of recollections by using a different format. However, by restricting the categories, we were able to obtain meaningful comparisons across exhibits.

References

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