THE MUSEUM AND ITS VISITORS: A LITERATURE REVIEW

A museum serves the community. It serves people who come once and people who come a dozen times a year, people who are students and people who come to while away a morning, people of eighty years old and people of ten years old. To communicate with the public, museum layout and exhibit design must be adaptive to the museum’s diversified audience. The museum must seek ways of making their visits, as interesting as possible, giving visitors what they expect in return for their time and effort. Ideally, it should also seek to surprise and reward them.

To be able to design for the diversity of museum visitors, architects and designers should:
- Read available source materials on building-people interrelationships.
- Use expert consultants in the behavioral sciences, especially, those with experience in the museum/exhibitions field.
- Conduct their own research whenever possible.
- Carry out post-occupancy evaluations of their projects.

This chapter has been organized to present information relating to museum visitor characteristics and behavior. The chapter contains two major sections. In the first, museum visitor characteristics literature is reviewed; in the second, museum visitor behavior literature is reviewed.

Summary of Visitor Characteristics

An essential part of museum administration is to regularly and systematically monitor the characteristics of people who come to see what it has to offer. Without this information, it is aiming blind in meeting the needs of its visitors. Museums, like most other organizations that provide goods and services for the public are anxious to know who is buying what they have to sell and whether their customers like what they are being offered. Monitoring visitors not only helps obtain information about the people who do come, but also about those who do not. Serious attempts to attract non-visitors...
may demand quite different skills and techniques in museum layout and exhibit design from those that are apparently meeting the needs of the existing visitors.

Survey findings have shown that the vast majority (90 percent) of the nation's museum directors would like to have more people visit their museums. Consultants have suggested that efforts to attract different segments of the population have contributed to the development of new kinds of museums, resulting in new museum audiences and increased attendance. The effort in understanding the museum audience is a vital step which they feel should not be taken lightly. (American Association of Museums, 1968)

From a study of various surveys a few general conclusions can be drawn concerning the characteristics of the museum visitors. They are as follows:

- Most visitors are first time visitors and generally unfamiliar with museum surroundings.
- Attendance is usually self-motivated and surprisingly non-repetitive; for most people the first visit will also be the only visit.
- The audience to which the museum layout and exhibits must convey its message is a non-captive, heterogeneous, freely moving, hurried, or uninterested and, at best, voluntary seekers of information, often physically tired collection of people.
- Most visitors are accompanied by one other person or are alone. However, some visitors are part of an organized group of family, friends, guided tour or school group. (Screven, 1976)
Summary of Visitor Behavior Literature

A critical look into visitor-behavior studies shows that researchers have been able to identify some critical performance and learning criteria for measuring the impact of museum spaces on museum visitors, as well as some key issues of significance for architects and designers. Each of the issues has a number of design implications, which will be discussed in Chapter III. The most relevant visitor-behavior issues include:

- **ORIENTATION;** orienting devices and techniques, both at entrance points and throughout the museum is absolutely essential if the museum is to ensure visitors comprehend and appreciate its goals and purposes as well as making them feel both physically and psychologically comfortable.

- **MUSEUM FATIGUE;** visitors will encounter a succession of experiences during the course of their visit which may bring on physical and mental fatigue. Museum fatigue is know to result from such factors as object satiation, disorientation, lack of contrast, as well as physical discomfort (i.e., noise, excessive heat, exhaustion).

- **ROUTE SELECTION;** it has been observed and documented that there are a number of factors which influence the route followed by the visitor (i.e., location of entrance and exit, length of route). Designing with this in mind, can decrease the chances of spaces and exhibits to go unnoticed.

- **TRAFFIC FLOW;** traffic flow is another aspect of circulation which must be considered, in order to ensure that the visitors can proceed with ease and at their own rate through the museum. The density of visitors in a given space can alter the effectiveness of communication with the public.

- **OBJECT AND GALLERY SATIATION;** a major factor in museum fatigue is object satiation (similarity of paintings or furniture as regards style, period, subject matter). The resulting decrease in interest can be controlled to some extent.

---

**Key Visitor Behavior Issues and Design Considerations**

<table>
<thead>
<tr>
<th>ORIENTATION</th>
<th>Exterior Views</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Landmarks</td>
</tr>
<tr>
<td>Texture</td>
<td>Proportion and scale</td>
</tr>
<tr>
<td>Circulation</td>
<td></td>
</tr>
<tr>
<td>Signage</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MUSEUM FATIGUE</th>
<th>Physical discomfort</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lounges</td>
<td></td>
</tr>
<tr>
<td>Seating</td>
<td></td>
</tr>
<tr>
<td>Orientation</td>
<td></td>
</tr>
<tr>
<td>Diversity and contrast</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ROUTE SELECTION</th>
<th>Gallery size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of path</td>
<td>Path configuration</td>
</tr>
<tr>
<td>Walking habits</td>
<td>Landmarks</td>
</tr>
<tr>
<td>Position of doors</td>
<td></td>
</tr>
<tr>
<td>Number</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TRAFFIC FLOW</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Display location</td>
<td>Gallery size</td>
</tr>
<tr>
<td>Seating</td>
<td>Path configuration</td>
</tr>
<tr>
<td>Corridor width</td>
<td>Landmarks</td>
</tr>
<tr>
<td>Control devices</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OBJECT AND GALLERY SATIATION</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diversity and contrast</td>
<td></td>
</tr>
<tr>
<td>Gallery size</td>
<td></td>
</tr>
<tr>
<td>Lounges</td>
<td></td>
</tr>
<tr>
<td>Lighting</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RANGE OF MOVEMENT</th>
<th>Gallery entries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Right-hand wall</td>
</tr>
<tr>
<td>Number of doors</td>
<td></td>
</tr>
<tr>
<td>Diversity</td>
<td></td>
</tr>
<tr>
<td>First floor galleries</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ATTENTION DISTRACTORS AND ATTRACTORS</th>
<th>Backgrounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gallery doors</td>
<td></td>
</tr>
<tr>
<td>Diversity</td>
<td></td>
</tr>
<tr>
<td>Walking distance</td>
<td></td>
</tr>
<tr>
<td>Windows</td>
<td></td>
</tr>
</tbody>
</table>
extent by arranging exhibits to provide the greatest possible diversity. In the same way gallery satiation, resulting from insufficient contrast between adjacent galleries, can have a similar impact upon the viewer.

- RANGE OF MOVEMENT: the kind of behavior that takes place in museums is exploratory locomotion; that is, simply walking around and examining unfamiliar objects in a relatively unfamiliar place. Comparison's of visitor movement data shows that a number of variables (i.e., color, entrances and exits, walls), can influence the amount of area (square feet) covered.

- ATTENTION DISTRACTORS AND ATTRACTORS; the settings or surroundings of the exhibit are as important as the exhibit itself. Everything possible should be done to avoid conflict between the exhibit and its surrounding and enhance the ways in which museums can better communicate with their heterogeneous, transitory visitors.

Definitions and descriptions of the issues came from the Communications Design Team of the Royal Ontario Museum, Toronto, Canada, 1976)

Following is a summary of each of these issues, based on literature review. The organization of this section is as follows:

- Overview of the studies.
- Primary conclusions: general principles have been consistently supported.
- Secondary conclusions: studies in this area is limited, need for further research.

ORIENTATION. Museum literature, both empirical and intuitive, emphasizes the need for museum orientation. Not only do museum visitors need to know where they are and where they are going, but also need assistance in making the best use of their limited time. In a study on visitor orientation by Cohen and Winkel (1977), it is stressed that the availability of a comprehensive orientation system is essential if museums are to ensure that visitors comprehend the goals and purposes of the museum. The absence of an integrated approach to visitor orientation may lead
to inefficient exploration of the exhibit halls with a resultant increase in frustration, boredom, and fatigue.

Cohen and Winkel (1977) point out that the design of an efficient and integrated orientation system demands clarification of the roles played by different devices in guiding the visitor through the museum. The study found that both maps and signs, in combination reduced the amount of disorientation and recommended the use of such integrated orientation systems. They found that maps were used to obtain an overall image of the area presented, while signs supplied specific directions.

While conducting visitor orientation studies at the National Museum of History and Technology, Smithsonian Institution, Cohen and Winkel (1977), saw the importance of linking information about the location of exhibits, other facilities (i.e., lounges, cafeteria, restrooms, etc.), the visitors themselves to salient cues provided by the architecture. For example, Lakota (1975), suggests that directional cues can be provided by color coding halls and using specific colors as backgrounds for exhibit title signs at entrances. Parr (1964), concluded that if a museum has an architectural feature such as a multi-story interior court, this can become a landmark and orientation point. He noted, because he returns to it again and again, on different levels and from different directions, the void amidst repetition becomes a redundant experience, helping the visitor to feel at ease in his surroundings.

Lakota (1975), has reported that visitors have an insatiable demand for orientating information, and concluded that many visitors feel more secure if there is redundancy in the information system. Thus, an effective orientation scheme should allow for memory lapses by providing redundant cues at all major decision points in the museum (i.e., foyers, landings, corridor junctions, etc.).

Researchers involved with visitor orientation studies agree that it

---

**ORIENTATION FINDINGS**

- **Primary**
  - Having to make an abundance of directional choices tires the museum visitor. (Parr, 1964).
  - The unoriented visitor becomes bored sooner and leaves the museum sooner. (Cohen, 1975).
  - Inadequate directories for guidance of the museum visitor is one of the main sources of museum fatigue. (Parr, 1964).
  - Orientation devices commonly include maps and diagrams, directories, signs, information staff and salient cues, integrated into the architecture (i.e., two-story central court, a colonnade, etc.). (Cohen and Winkel, 1977).
  - Some visitors need physical orientation systems (i.e., how to get to a gallery or exhibit, as well as conceptual orientation systems, i.e., what there is to see). (Cohen, 1975).
  - Museum visitors find redundant cues at major decision points helpful. (Parr, 1964).
  - A visitor's orientation is more systematic if through the index, from floor one to three. (Cohen, 1975).
  - Few museum visitors follow the labeled sequence of the index. (Porter, 1975).

- **Secondary**
  - Lost visitors report confusion over directions while inside the main, such as east-west or north-south. (Cohen, 1975).
  - Visitors want directional signs to assist them in locating rest areas, cafeterias, and exhibits which allow them to sit while viewing it. (Cohen, 1975).
  - Lost museum visitors find maps and plans hard to follow. (Parr, 1964).
  - Lost museum visitors backtrack during the course of their visit. (Cohen, 1975).
  - Some visitors use maps for orientation. Some people find Orientation Hall signs even more helpful for specific directions and paths. (Cohen and Winkel, 1977).
  - Some visitors find signs to be more helpful than maps for orientation. (Cohen and Winkel, 1977).
MUSEUM FATIGUE FINDINGS

Primary
- A major factor in museum fatigue is gallery satiation, insufficient contrast between adjacent galleries, etc. (Elton, 53).
- A major factor in museum fatigue is object satiation, similarity of paintings or furniture as regards style, period, subject matter, etc. (Elton, 59).
- During the course of a visit and after a brief waiting period, museum visitors displayed a tendency to stop before a progressively smaller percentage of the exhibits encountered and to have progressively shorter stops. (Bennett, 54).
- Satiation is a bigger fatigue problem than physical, mere airing fatigue. (Cohen, 55).
- A number of body positions contribute to museum fatigue, i.e., bending, twisting, crouching, stretching, climbing, looking up, etc. (Silvan, 55).

- Visitors consistently use and inquire about areas for relaxation, i.e., benches, benches, restrooms, drinking fountains, sitting areas, lounges, etc. (Cohen, 55).
- Visitors reported being bored and spent a limited amount of time in the museum due to a lack of orientation. (Cohen).
- Without a useful scheme for viewing exhibit halls, frustration, boredom, fatigue, and missed opportunities result. (Cohen and Hermes).

is the undirected visitor who gets bored first and leaves the museum soonest. From their studies, a number of conclusions can be drawn concerning museum orientation systems:

MUSEUM FATIGUE. Regardless of the splendor or the importance of the museum exhibit, the undirected visitor may still feel their attention and curiosity waning and may eventually begin to suffer from what museumologists call "museum fatigue." Melton (1935), describes "museum fatigue" as a condition that is thought to occur late in the museum visit and that is characterized by a lowered responsiveness to the museum exhibits.

Studies conducted by Gilman (1916), Robinson (1928), Melton (1933), and Neal (1976) have shown that "museum fatigue" is a result of factors as object satiation, disorientation, lack of contrast (e.g., in exhibit and gallery design and layout) and physical discomfort (e.g., excessive heat, exhaustion, and noise, etc.). These studies were based on direct observations of visitor behaviors such as leaning against conveniently blank walls, slower and shuffled walking, decreasing viewing time, an increasing number of skipped objects and exhibits.

The early studies of Robinson (1928), gave definite evidence for the reality of the decrement in the interest of visitors. In a study at the 69th street branch of the Pennsylvania Museum of Art Melzo (1935), was able to determine the decrements in the interest of the visitors under nearly optimal experimental conditions and found that the time visitors spent before a painting once they had stopped decreased only very slightly during the museum visit, but the frequency with which visitors stopped had remained the same. The visitors were looking at only two-thirds as many paintings at the end of their visits as they were at the beginning.

Gilman (1916), conducting studies at the Museum of Fine Arts in Boston was able to determine that museum fatigue does exist. Photographs were taken with the
The object of determining by actual observation just what kinds and amount of muscular effort are demanded of the visitor who endeavors to see exhibits as museum authorities plan to have them seen.

The pictures obtained indicated that an inordinate amount of physical effort is demanded of the ideal visitor by the present methods in which museums offer most objects for visitor inspection.

**ROUTE SELECTION.** Why do visitors select certain routes over others? Where is the best place to locate major exhibits and exhibition halls? Why do some exhibits and exhibition halls go unnoticed? These and similar questions have been investigated by a number of researchers and their findings and conclusions are presented in this section.

The first study conducted by Robinson involved several art museums. By following visitors around the museum Robinson (1928), noticed a general preference to turn to the right. He noted that, "we have recently been measuring the strength of the habit of walking to the right as it appears in museum behavior. We find this tendency to be so strong that left walls in long halls and galleries are markedly inferior to right hand walls as places of exhibition." Porter (1938), Weiss and Boutourline (1962), also noticed all other things being equal, more visitors will walk through galleries along the right hand wall.

Melton (1931), also working in art museums, confirms this observation. He also noted other factors which influence the route followed by the visitor. Objects located along the shortest route between the entrance and exit of a gallery receive the greatest amount of attention. He also noted what he terms "exit-attraction". Melton found that exhibits nearer the exit had less chance of being seen. Thus, the presence of the exit draws the visitor out of the hall so that he pays little attention to the last few exhibits. Melton found that experimenting with changes in exit location influenced visitor behavior.
Porter (1938), working at the Peabody Museum of Natural History at Yale, concluded that the Hall of Invertebrates was receiving little attention, because it contained no visible exits. She noted that, "perhaps the fact that this hall does not lead into any other hall is also an important factor in preventing the casual visitor from traversing its length." Porter also found that the brief attention may have been influenced by the power of the "exit gradient". The main entrance hall with the stairway to the third floor may serve as an attraction greater than the exhibits in the Hall of Invertebrates.

Weiss and Boutourline (1962), followed visitors through the United States Science Pavilion, at the Seattle World's Fair and found an important determinant of paths taken through the pavilion is the location of the entrances and exits. They noted, "the most usual paths will be among those which permit some exploration of the hall, but which also represent a fairly direct route from the entrance to exit."

Another factor important in determining the paths taken through the pavilion was the sense of "streets" and "avenues" which was communicated by aisle width and regularity. They also noted that the visitors were unwilling to go into areas where exits were not readily apparent.

Weiss and Boutourline also felt that "landmark exhibits" determined the path that a visitor followed. They feel that various qualities make an exhibit a "landmark exhibit". These may be beauty, curiosity value, educational value, or some quality of the exhibit itself which leads to an appreciation for it.

Finally Yoshioka (1942), studying visitor behavior in the Medicine and Public Health Building at the New York World's Fair in 1939, noted a tendency of visitors to leave by the first exit on their route. He stated that, "the decision of an individual to use this or that exit seems to depend upon the sufficiency of psychological satisfaction, determined by the degree of the exploratory tendency acquired by the time the particular exit is reached."
Traffic flow is another aspect of circulation which must be considered to ensure that visitors can proceed with ease and at their own rate through the museum. The density of people in a given space at a given time can affect the quality of communication aimed at visitors.

Most museums, large and small, must deal with the special circulation problems of guided tour groups and large concentrations of visitors in front of one particular exhibit. Museum educators frequently mention the need for corridors and exhibit space of adequate width so that groups and individual visitors do not have to interfere with one another. To better control such crowding, the Historical Society Museum in Chicago, which has a large daily number of school groups, has a traffic coordinator who keeps track of where various groups are within the museum at any one time.

Yoshioka (1942), after conducting studies in the Medicine and Public Health Building, at the New York's World Fair 1939, concluded that the presence of other visitors will affect a visitor's behavior. He notes, "the crowding of so many persons into an exhibition hall creates quite a different situation from that found in most museums." The fixed behavior pattern of the right turn preference, noted by Robinson (1928), Melton (1931), and others might be present, but the large crowd probably causes new behavior patterns. Bechtel (1967), concluded, knowing that one is being watched leads to less time spent in a gallery and less use of an area.

Wright (1958), evaluating displays for museums of science and history, concluded that gallery spaces that control visitor circulation provide a better viewing environment and offer a less fatiguing experience than those without controls.

Borhegyi (1963), studied several Art Museums and found it is a mistake to group sculptures in the middle of the room and hang paintings along the wall. The traffic pattern is disrupted, and people mill around in confusion, bumping into one another. He
notes, "people simply do not know how to approach the things in the middle of the gallery."

Borhegyi (1965), studying flow and crowd pressure at the Milwaukee Public Museum has noted that museum visitors almost invariably turn to the right when entering an exhibition hall. They follow the exhibit cases along the wall moving from right to left, reading labels in each display from left to right. This according to Borhegyi results in a slow and disrupted traffic flow and the visitors information retention factor is at a minimum.

Borhegyi also found that different areas in the galleries and exhibits should be designed for different types of crowd flow. He concluded, "areas of constant crowd flow (e.g., bends in corridors,), should have terse, repetitive exhibits, areas of crowd stoppage (e.g., entry), with easily digestible general exhibits and areas of variable crowd flow (e.g., middle of the gallery, alcoves out of the circulation path), allowing the visitor to make leisurely choices among simple and complex exhibits.

Bernardo (1972), points out that crowding is a factor which contributes to museum fatigue. He also notes, "the actual capacity of a museum to handle people efficiently is a function not of the area or volume of the museum building, but of the width of its corridors and aisles."

Lakota (1975), studying large numbers of people moving through museums noted that a constriction in the circulation path (e.g., a central display island), resulted in an accelerated rate of flow around it. He suggests, "visitor flow should be treated with great care, and that the visitor's pattern of movement should be determined by what the visitor wants to see rather than by the pressures of crowd flow."

Object and Gallery Satiation. Researchers have shown that a major factor in museum fatigue is object satiation (similarity of paintings or furniture as regards style, period, subject matter, etc.). They point out that the
resulting decrease in interest can be controlled to some extent by arranging exhibits to provide the greatest possible diversity. In the same way it can be assumed that gallery satiation, resulting from insufficient contrast between adjacent galleries, can have a similar impact upon the viewer.

Porter (1938), studied the behavior of visitors in the Peabody Museum of Natural History at Yale University. See found that visitors stayed longer in the first hall entered than in any succeeding hall and that the speed of the visitors definitely increased in each hall until they reached the hall of Invertebrates. In this hall the number of feet traversed was so small in comparison with the other four halls that the time spent per foot was nearly doubled.

Porter discovered that in each of the halls preceding the Hall of Invertebrates there are peaks of interest wherever there is variation in the mode of display; for example, at the five lighted habitat cases the frequency of stops ranges from 21 to 32; whereas, at the cases of uniform size and arrangement the frequency of stops ranges from 0 to 10.

Learning experiments have shown that the more monotonous a stimulus becomes, the more the attention wanders, and that any change from the habitual tends to attract and hold attention. Melton (1931), found that on the average the attraction-value of paintings tended to decrease as the visitor progressed around the gallery from right to left. With this in mind Melton suggests that the objects shown in sections of the museum passed early in the visit should be selected with high receptiveness of the visitors at that time in mind, and the selection of the objects that are to be displayed in the sections of the museum passed late in the visit should likewise be in accordance with their receptivity.

Robinson (1931), observing visitors at the Buffalo Museum of Science found that the time they spent before a painting once they stopped decreased only very slightly during the museum visit.
but the frequency with which visitors stopped before paintings exhibited a marked decrement. The visitors were looking at only two-thirds as many paintings at the end of their visit as they were at the beginning. This decrement set in immediately after entry, thus decrement in the interest of the visitors must be taken into account anywhere in the museum.

Cohen (1974) concludes that satiation is a problem of greater fatigue than the physical exertion of viewing exhibits.

RANGE OF MOVEMENT. The kind of behavior that takes place in museums is exploratory locomotion; that is, simply walking around and examining unfamiliar objects in a relatively unfamiliar place. Comparison of visitor movement data shows that a number of variables (e.g., color of floors and walls, location of entrances and exits, etc.) can influence the amount of area (square feet) covered.

Melton (1931), and Porter (1938), have each found that certain areas of a museum are used more extensively than others; for example, first floor areas, areas around the gallery entries, areas with large amounts of information, right hand side of galleries and galleries with two or more doorways are used more extensively.

Niehoff (1949), obtained information about the amount of area used by visitors on each floor. He found, by asking visitors which floors they had visited, ninety-one per cent had visited the first floor, sixty-three per cent had visited the second, while forty-one per cent had reached the third floor.

Bechtel (1967), used a hedometer to obtain exact movements and times within the floor space in an art gallery. This consisted of an electric floor grid system sensitive to visitors movement. He tested whether the same room with light wallpaper and rug will induce better use of the area than dark wallpaper and a dark rug. The study showed that
visitors tend to use more area in the dark colored room even though the amount of light was constant in both rooms. Bechtel also noted that men cover more ground on a given visit, have more footsteps recorded, and are a little slower than females. Bechtel also noted that men cover more ground on a given visit, have more footsteps recorded, and are a little slower than females. The time spent in the room was about the same for both males and females.

It was also discovered that knowing that one is being watched makes the visitor spend less time in the room, use less area, fewer footsteps and spread out their footsteps more evenly.

**ATTENTION DISTRACTORS AND ATTRACTION FINDINGS**

- Major exhibit not viewed
- Exit distraction
- Unnoticed exhibit
- Lengthy walking distance
- Diversity attracts
- Disturbing windows
- Disturbing backgrounds

**Primary**
- Gallery doorways, (primarily the exits), draw visitors to otherexhibits to go unnoticed. (Melton, 1931).
- Having to walk a lengthy distance to exhibits discourages visitors to see it. (Melton, 1931).
- Visitors pay more attention to unusual or unknown environments, (Hageron, 1972)
- The more monotonous a gallery or exhibit is the more attention handlers, (Porter, 1931).

Melton (1931), analyzing exhibit installation at the Pennsylvania Museum of Art in Philadelphia and the Museum of Science and Industry in New York, learned that by the time some visitors reached the exhibit in question they were already growing fatigued and still others had their attention distracted from the exhibit by secondary characteristics of the gallery. For example, Melton cited doorways leading to other galleries as a prime distractor, a overly long walk to the exhibit and the visual conflict with nearby exhibits.

Porter (1938), and Calver (1939), suggest that windows in the field of view, discouraging vista's, distracting backgrounds (e.g., textured wallpaper, etc.), and gallery spaces with little diversity (e.g., lighting, color, exhibit case design, etc.), can distract visitors from viewing exhibits.