

Gender and locality-related differences in circulation behavior in a museum setting

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(Received 27 May 2008; final version received 3 September 2008)

The authors present the results of a case study conducted at the Sadberk Hanım Museum in Istanbul, which explored the relationship between gender and locality (being a native resident or foreign tourist) of visitors and their circulation behavior. Results indicated that visitor characteristics, particularly locality, had a significant impact on range and duration of circulation, but not on general patterns of route selection, such as the right-turn bias. Results are discussed with respect to the related literature.

Keywords: museum exhibitions; visitor experience; visitor behavior; visitor circulation patterns; visitor characteristics; gender; locality

Introduction

There has been a shift in the conceptualization of museums during the last 30 years. As stated by Hooper-Greenhill, ‘the modernist museum, which emerged during the nineteenth century and reached its apogee by the beginning of the twentieth, understood its visitors as deficient. . . visitors were represented as undifferentiated mass’ in contrast to the superiority and unquestionable authority (political, historical, and social) of museums (2000, 125). However, the new museum model, called the ‘post-museum’, has broken down and differentiated the mass, and ‘has become much closer to [its] audience and become conscious of those to whom they are speaking. Who is being addressed, how they are spoken to, and who is speaking and how have become major targets for analyses’ (Hooper-Greenhill 2000, 142).

This shift in museum concept has also been reflected in visitor studies. Audience surveys based on demographical and psychographical data (Hood 1993; Hood and Roberts 1994; McManus 1996a; Prentice, Davies, and Beeho 1997; Bourdieu and Darbel 1997; Falk, Moussouri, and Coulson 1998; Combs 1999; Falk and Adelman 2003), program evaluations and behavioral studies of particular groups such as children (Cohen and McMurtry 1985; Cohen 1996; Thomas 1996), adults (Cohen 1996; Matthew 1996) and families (Falk 1991; McManus 1994; Sandifer 1997), as well as the reports of these segmented visitors, have increased greatly since the 1970s (Hood and Roberts 1994; Hein 1998).

Behavioral research in museums investigates how exhibition spaces are used, focusing on the bodily responses of visitors (Robillard 1982; Klein 1993; Bitgood and

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Loomis 1993; Soren 2001; Bitgood 2002, 2006). With regard to the visitors' use of exhibition spaces, Annis (1994), who refers to museum displays as 'texts', states that unlike the readers of a book or the audiences of a film, visitors to a museum have to travel in this setting because of its physical nature. Thus, visitors' museum experiences go in parallel with their choice of movement. During their visit, visitors are free to choose how they move through this environment, and they mainly disregard its museological order, which is almost always conceived by museum designers (Klein 1993).

In this respect Falk (1993) states that, during the course of a visit, visitors may be pulled away from the inner organization of museum environments as their reactions and responses to the museums' physical, social and informational environments are influenced by various factors, such as their personal reservoirs (Mehrabian 1976; Falk and Dierking 1992). Personal characteristics, which influence the kind of experiences visitors may have during the visits, make up the personal reservoir of the visitors' attitudes and behavior (Falk and Dierking 1992; Hood and Roberts 1994). In a similar vein, referring to selective attention, Bitgood (2002) also notes that because of individual differences, people focus upon, and pay attention to, different types of information employed in museum environments, especially in exhibit settings.

In museums, therefore, the meaning of an object seems to be subject to multiple interpretations – and is idiosyncratic rather than fixed – depending upon the specific memories, expertise, viewpoints and assumptions brought by the viewers (Weil 1997), as well as those who display objects in a particular setting (Pearce 1993; Silverman 1995; Hooper-Greenhill 2000). Visitors from different social and cultural backgrounds or sexual orientation bring their unique experiences and prior knowledge to the exhibitions, and they may respond in diverse ways according to their own perspectives (Hein 1998). The material property, the historical and social context and also the settings in which objects are displayed may result in different emotional and cognitive responses among different audiences (Pearce 1994, 1998; Hein 1998). Thus, they may or may not be interested in the objects displayed (Mehrabian 1976; Bitgood 2002, 2006).

Respectively, as Hooper-Greenhill states, the behavior of visitors may differ, because behavior 'cannot be separated from the emotions, and equally, mental activity (cognition) works in partnership with bodily responses' (2000, 113). In this respect, Hooper-Greenhill (2000) also points out that objects are known tacitly and that this knowledge remains non-verbal and unarticulated, and mobilizes feelings and emotions. She states that whether they are connectedness, being familiar, liking, gaining an understanding or alienation, unspoken feelings influence in turn visitors' attitudes and behavior during a given visit.

Accordingly, the aim of the present study was to explore two visitor characteristics, gender and locality, on museum circulation behavior in the Turkish-Islamic Section of the Sadberk Hanım Museum in Istanbul. This museum houses a permanent exhibition of collections containing Turkish-Islamic art works, costumes and daily-life objects that belong to the Ottoman period. As explained later in this paper, the setting was chosen because of the diversity and density of audience flow, as well as the content characteristics of the exhibition. We consider first the literature on the impact of environment and visitor-related factors on circulation

behavior; then specify our hypotheses, and provide a description of the setting in which the research study was conducted.

Circulation behavior: environment- and visitor-related factors

Circulation behavior, which refers to the overall movement patterns of visitors, has been studied in terms of visitor-related as well as environmental factors. Accordingly, various setting factors were found to influence circulation patterns, including location and spatial arrangements of exhibitions with respect to other exhibits and to the setting (Bitgood, Patterson, and Benefield 1988; Melton 1988; Miles et al. 1988; Bitgood et al. 1991; Falk 1993); size of galleries and position of galleries with respect to each other within the layout of the setting (Melton 1988; Zucker and Clarke 1993; Klein 1993; Bourdeau and Chebat 2001); width of the paths between exhibits or exhibit cases (Miles et al. 1988); wall colors of the galleries (see Mehrabian 1976); floor finishing materials of the galleries (Bitgood 1996); number of floors of the exhibition setting (Miles et al. 1988); number of entrance and exits and distance between entrance and exits (Melton 1988); number of exhibits in a given visit (Melton 1988); lighting of galleries and exhibits (Bitgood et al. 1988); and the number of visitors in the setting (see Robillard 1982).

In a similar vein, a variety of exhibit factors were also found to have an impact on visitors' movement patterns, including single objects, moving objects and objects with sound (Peart 1984; Bitgood et al. 1988); placement of exhibit labels in relation to exhibits and label characteristics such as content, size, color and typography (Shettel et al. 1968; Shettel 1976, 2001; Screven 1992, 1999; Bitgood and Patterson 1993; Hirschi and Screven 1996; McManus 1996b; Serrell 1996; Bitgood 2000; Bourdeau and Chebat 2003); and interactivity level of exhibits with visitors (Eason and Linn 1976; Bitgood et al. 1988; Fernández and Benlloch 2000; Sandifer 2003).

Apart from those environmental aspects, and more in line with the present study, *duration* and *spread* of movement have been used to measure the degree of visitor interest in the environment (Melton 1988). Here, the 'interest' does not only indicate the 'satisfaction – due to making personal meaning' (Doering, Pekarik, and Kindlon 1997); it also refers to the level of engagement with the environment and the displays (Melton 1998), which can lead in turn to approach or avoidance behavior (Mehrabian 1976).

Melton (1988) defines duration of movement as the length of time spent in a particular gallery, room or an exhibit, and the spread of movement as the amount of area (gallery or room) occupied and the number of exhibits examined. That is, the more time spent and the more area covered, the more interested is the visitor. Thus, a high degree of engagement/satisfaction seems to be related to spending more time, examining many exhibits and using more physical space in that given setting. In the present study, we made observations of visitors' circulation behavior by using measures of both duration and spread of movement, as explained later.

Hypotheses

In keeping with the preceding review, we expected that visitors' circulation behavior would differ as a function of their gender and locality. We considered gender to be important on the basis of Pearce's (1998) finding that 'for women, jewelry,

personalia, ornaments and living things are more important than they are for men, followed by toys, furniture and hygiene, whereas for men, vehicles stand out . . . Men prefer entertainment, craft objects, collections, weapons, and households' (228). In a similar vein, Belk and Wallendorf (1994), who focus upon gender identity and object relationships, argue that although not all objects are strongly gender-typed, objects convey certain gender role characteristics, such as brushes (feminine) versus pocket-knives (masculine).

In addition, they state that the objects possessed by collectors differ in relation to collectors' gender characteristics and the characteristics of objects. For example, decorative and fragile objects are seen as feminine antiques, whereas functional and substantial objects are considered to be masculine. On the basis of the above-noted literature, the first hypothesis was stated as follows:

Hypothesis 1. Compared to male visitors, female visitors' circulation behavior would reflect more engagement, in terms of both range and duration, with feminine-typed objects exhibited in the specified areas of the museum studied.

In other words, women, relative to men, were expected to be more interested in the objects displayed in the museum setting studied, such as wedding and bed dresses, presentations of henna-night ceremony (*kına gecesi odası*), presentation of woman after childbirth (*loğusa odası*) and jewelry, because of their gender-relevance.

In a similar vein, we considered the variable of locality worthy of exploration on the basis of the literature – suggesting the importance of the familiarity of content for liking or interest (e.g. Hein, 1998; Imamoğlu, 2000). For example, Hein notes that the prior knowledge (what is already known) and the prior experience of visitors concerning museum image and exhibits determine what meaning visitors will make through their experiences. In a similar vein, Hooper-Greenhill (2000) states that the artifacts bring the patterns of thought, attitudes and beliefs that structure a society, constructing common-sense categories which orientate individuals' and communities' lives and expectations. She states that familiar shapes, textures and colors allow the recognition of objects at both the personal and community level. This recognition also results in a feeling of belonging, or coming home.

By contrast, difference, diversity and possibly alienation can be invoked by unfamiliar objects. In a recent study, Imamoğlu (2000) demonstrated that complex but familiar stimuli are evaluated more positively than those that are not familiar. Thus, the second hypothesis was stated as follows:

Hypothesis 2. Circulation behavior of local visitors, as opposed to that of foreign tourists, would reflect more engagement with the Ottoman–Turkish, culture-relevant objects displayed in the specified areas of the museum studied.

In other words, because of the culture-relevance, meaning or familiarity of the displayed objects, local visitors were expected to show more interest as reflected in both the range and duration of their circulation behavior.

On the other hand, some general habits of people seem to be reflected in circulation behavior, regardless of individual characteristics (Melton 1988; Bitgood 1996, 2002; Bourdeau and Chebat 2001). For example, based on his studies at the Pennsylvania Museum of Art, Melton (1988) concluded that, upon entering a gallery, the majority of visitors turn towards the wall to the right of an entrance,

independent of the displays. The tendency of visitors to turn to the right, as a marked characteristic of the museum population, is referred to as the 'right orientation' or 'right-turn-bias' in the visitor behavior literature (Shettel 1976; Melton 1988). In addition, it has been also proved that visitors have a tendency to take the shortest distance between the entrance and exit while moving through a gallery or room, which is called 'exit-gradient' (Melton 1988; Bitgood 2002).

Bitgood (1996) also mentions 'inertia', which is referred to as the visitors' general tendency to continue walking along a straight-line path. Following this argument, it was also proposed that visitors are less likely to turn back after they pass a gallery or exhibit (Bourdeau and Chebat 2001). In line with the above-noted literature, we expected that gender and locality would be more likely to impact circulation patterns involving range and duration of behavior, rather than general behavior habits such as right-orientation, which were not expected to vary.

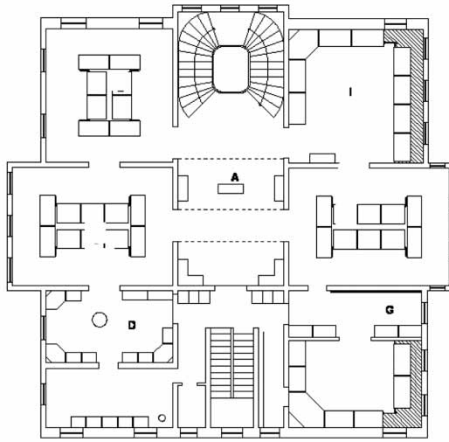
In summary, the present study focused upon circulation behavior in museum settings from the visitor perspective (Falk and Dierking, 1992; Falk et al. 1985), with the assumption that the use of exhibit spaces depends on individual repertoires of visitors because these characteristics influence how they respond and react to the whole environment. The purpose was to gain an overall picture of visitor circulation patterns and, in particular, to determine if circulation patterns differ according to the gender (women/men) and locality (local/foreign) characteristics of visitors in an exhibition setting – which contains gender-typed and locally relevant exhibits in terms of content and materiality, as described below.

Description of the setting

The study was conducted at the Azaryan Yalısı building of the Sadberk Hanım Museum in Istanbul, which houses one of the two permanent exhibitions of the museum and is called the Turkish–Islamic Section. Accommodated on both floors of the building, the section's total exhibition area is 700 square meters (7535 square feet). The floor plans of the section showing the exhibition design shown are in Figure 1.

The presentation of the exhibits on the first floor is based on the theme of the exhibits and also follows a chronology from the 13th century to the late 19th century (except the rooms indicated by A and E). The exhibition includes different kinds of objects in materiality and content, such as gold jewelry, ruby and emerald decorative objects that belong to Turkish–Islamic periods, ceramic plates for both daily use and for religious purposes and ceramic tiles with mosque and church depictions. The exhibits on the second floor are also presented according to theme and include costumes and daily-life objects that belong to the Ottomans, such as velvet fabrics used for caftans, silk aprons, wedding dresses, manuscripts, pinking and silver embroideries, leather book covers and cases and decorative glass cups. Some exhibits are displayed together in order to present Ottoman customs. Thus, the setting was chosen because of the gender- and locality relevance of the exhibits. The contents of the exhibits displayed in each room are shown in Table 1.

First floor



Second floor

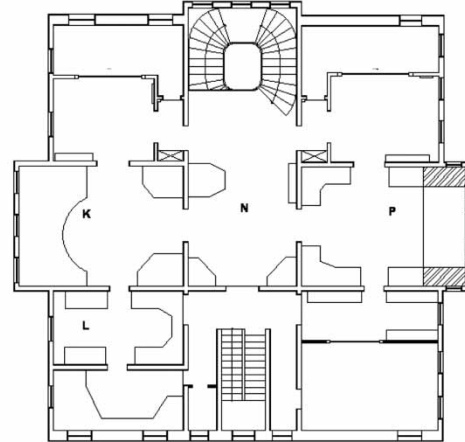


Figure 1. Floor plans of the Turkish-Islamic section in Sadberk Hanım Museum in Istanbul.

Sample

Circulation behaviors of 52 visitors were observed in the chosen section (Turkish-Islamic Section) during the winter season (between 21 January and 20 February). Children and teenagers were not included in the study, as the visitor behavior literature mentions differences between adult visitors and children/teenage groups in terms of both their attitudes and overall behavior patterns in museum environments

Table 1. Contents of the exhibits presented in the rooms on the first (A–I) and second (J–Q) floors

| Room | Exhibits |
|--------------|--|
| First floor | |
| A | Turkish paintings and French antiques (furniture) |
| B | Early Islamic artifacts |
| C | Late Islamic artifacts |
| D | Turkish-Islamic jewelry |
| E | Awards belonging to Vehbi Koç |
| F | Turkish ceramics (Çanakkale and European Bazaar) |
| G | Turkish ceramics (Kütahya) |
| H | Chinese porcelain |
| I | Turkish ceramics (Iznik) |
| Second floor | |
| J | Presentation of woman after childbirth (loğusa odası) |
| K | Wedding dresses |
| L | Traditional costumes and daily-life objects |
| M | Bed dresses |
| N | Presentations of bridegroom shaving, bride bath, coffee serving |
| O | Presentation of henna-night ceremony (kına gecesi odası) and Ottoman manuscripts |
| P | Ottoman fabrics |
| Q | Presentation of circumcison ceremony (sünnet odası) |

(Andrews and Asia 1979; Cohen and McMurtry 1985; Falk 1991; Cohen 1996; Matthew 1996; Thomas 1996). In addition, children and teenagers generally come with school groups and their visits are 'potentially teacher directed and often limited to a preallotted time duration' (Sandifer 2003, 125). Visitors who had visited the museum before were also not included in the study in view of the idea that frequent visitors' previous experiences could affect their movement patterns (Bourdeau and Chebat 2001, 2003).

Therefore, the sampling of the study included first-time adult visitors who were selected with the help of the museum staff at the ticket sales counter. While visitors were purchasing their tickets, the staff inquired unobtrusively where they were from and whether or not it was their first visit. In accordance with the aims of the study, visitors were stratified on the basis of gender (women/men) and locality (local/foreign), so that equal numbers of female and male visitors, as well as local and foreign visitors, were chosen. Mean ages of women and men were 42.50 [standard deviation (s.d.) = 11.96] and 44.35 (s.d. = 15.54); that of local and foreign visitors were 40.73 (s.d. = 12.98) and 46.12 (s.d. = 14.24), respectively. A 2 (gender) \times 2 (locality) analysis of variance (ANOVA) indicated that the groups did not differ in age.

Definitions of variables

As noted, the main focus of the study was upon circulation behavior involving range (or spread) and duration of movement, which was defined in terms of the following: (a) the amount of area covered, which refers to the number of exhibit groups in cases passed by a visitor; (b) location of stops, which is defined as the point at which the visitors stopped in the setting (a visitor was considered to have stopped when he or she spent at least 5 seconds at a point – the use of a 5-second cut-off is common in the literature; see Fernández and Benlloch 2000; Sandifer 2003); (c) the number of stops, which refers to the total number of stops made by a visitor; (d) duration of stops, which is defined as the length of stay when a visitor stopped at a point; and (e) the duration of use of area, which refers to the total time spent (in seconds) in the setting. Total time included any kind of activity of a visitor in the setting, such as walking, examining exhibits, glancing around, talking and resting. Observations were also made involving route selection (visit order of the floors, preference of turning right versus left and the path followed).

In terms of demographic characteristics of the visitors, gender and locality were noted. Museum users from Turkey (native Turkish residents) were recorded as local visitors and those from other countries (foreign tourists) were recorded as foreign visitors.

Procedure

Two methods – observation and questionnaire – were used for collecting data, and observations were made unobtrusively during the course of entire visits. A questionnaire was administered at the end of the visits to obtain further information about visitors, and to verify that they met the criteria of the study. All visitors agreed to participate in the questionnaire. Using the sampling procedure, only one visitor per group was observed through the setting.

To begin, the researcher waited for an eligible visitor at the entrance to the museum near the ticket desk, in order to assess the visitor's characteristics (gender, locality and number of visits to the museum). When the first group entered the museum, regardless of the number of visitors in the social group, the first visitor meeting the criteria of the study was observed. If the visitor was a local woman, the observation procedure was as follows: after the local woman visitor was observed and asked to complete the questionnaire, the first local man visitor to enter the setting was observed and asked to complete the questionnaire. Next, the first foreign woman visitor was observed. In this manner, the researcher repeatedly cycled through both women and men, and local and foreign visitors.

For each visitor, two kinds of observational data were recorded, including behavioral and time data. The behavioral data included visit order of the floors, right- or left-turn preference for each floor, the path taken through each floor on a scale map, and the stopping-points. The time data included times of entrance to, and exit from, the setting, time spent on each floor and during each stop. The security attendants who, in general, have to observe visitors without disturbing them, were informed about the objectives of the study, and provided help in gathering the time data during observations. For data analyses, ANOVAs and χ^2 were conducted. The paths followed by the visitors, as one of the dependent measures, were explored by drawings on a scale map and the locations of stops were recorded.

Results

Data involving circulation behavior were analyzed by separate 2 (gender) \times 2 (locality) ANOVAs, which yielded only gender and locality main effects, while interaction effects were not significant in any analyses. Gender-related differences in circulation behavior are shown in Table 2. Accordingly, relative to men, women

Table 2. Differences in mean circulation behavior of women and men

| | Women | | Men | | <i>F</i> value ^a |
|---|----------|----------|----------|---------|-----------------------------|
| | M | s.d. | M | s.d. | |
| The amount of area covered in the setting ^b | 95.53 | 10.99 | 94.61 | 10.51 | 0.11 |
| The amount of area covered on the first floor ^b | 65.39 | 10.72 | 66.69 | 9.47 | 0.23 |
| The amount of area covered on the second floor ^b | 30.15 | 2.33 | 27.92 | 5.08 | 4.08* |
| Total time spent in the setting ^c | 30' 18'' | 15' 25'' | 23' 50'' | 9' 54'' | 3.65 |
| Total time spent on the first floor ^c | 15' 53'' | 9' 12'' | 13' 8'' | 4' 55'' | 2.02 |
| Total time spent on the second floor ^c | 13' 54'' | 6' 29'' | 11' 3'' | 6' 21'' | 2.77 |
| Total number of stops in the setting | 36.00 | 14.65 | 31.23 | 8.81 | 2.52 |
| Total number of stops on the first floor | 23.62 | 10.95 | 20.81 | 6.65 | 1.54 |
| Total number of stops on the second floor | 12.39 | 4.67 | 10.42 | 3.13 | 3.66 |
| Total duration of stops in the setting ^c | 22' 43'' | 14' 20'' | 16' 29'' | 8' 42'' | 4.17* |
| Total duration of stops on the first floor ^c | 11' 59'' | 8' 42'' | 9' 33'' | 4' 37'' | 1.80 |
| Total duration of stops on the second floor ^c | 10' 43'' | 6' 50'' | 6' 57'' | 5' 40'' | 5.25* |

* $P < 0.05$; M = mean; s.d. = standard deviation; ' = minute, '' = second. ^aDegrees of freedom = 1, 48; ^bmeasured in m²; ^cconverted to minutes and seconds after being analyzed in seconds.

covered significantly more area and stayed longer during their stops on the second floor. There were also non-significant trends for women to make more stops and to spend more time ($P < 0.10$) on the second floor. The rooms (indicated as K and N) on the second floor include displays of wedding dresses and presentation of customs, such as bride bath and coffee serving which, as expected, were more appealing to female visitors.

When the means for both floors were considered, there were also trends for women to spend more time and make more stops, as well as a significant trend for them to stay longer at those stops ($P < 0.05$) on both floors than men. There was also a non-significant trend for women to spend more time on the first floor. Although gender comparisons involving the first floor in general did not reach significance, observations involving specific rooms indicated that women made more stops and stopped longer than men in room D (which contains displays of Turkish-Islamic jewelry), whereas men were more likely to do so in room E on that floor (which contains a display of awards presented to Turkish industrial tycoon Vehbi Koç, as well as miniature cars).

Thus, our findings provided some support for the idea that gender characteristics may play an important role in interacting with exhibits. In congruence with the related literature noted in the introduction (Belk and Wallendorf 1994; Pearce 1998), the findings of this study partially support the hypothesis that in an exhibition setting, which contains gender-typed objects in materiality and content, the gender of visitors may influence their circulation patterns.

Our research also indicated that circulation patterns of local and foreign visitors differed significantly. As shown in Table 3, we found that, except for the mean amount of area covered on the second floor, local and foreign visitors differed significantly in all comparisons of their movement patterns in terms of the amount

Table 3. Differences in mean circulation behavior of local and foreign visitors

| | Local | | Foreign | | F value ^a |
|---|---------|---------|---------|--------|----------------------|
| | M | s.d. | M | s.d. | |
| The amount of area covered in the setting ^b | 98.69 | 7.19 | 91.46 | 12.37 | 6.42* |
| The amount of area covered on the first floor ^b | 69.19 | 5.89 | 62.89 | 12.26 | 5.40* |
| The amount of area covered on the second floor ^b | 29.50 | 3.83 | 28.58 | 4.32 | 0.70 |
| Total time spent in the setting ^c | 31' 49" | 15' 4" | 22' 19" | 9' 9" | 7.87** |
| Total time spent on the first floor ^c | 17' 5" | 7' 48" | 11' 56" | 6' 9" | 7.00** |
| Total time spent on the second floor ^c | 14' 35" | 7' 38" | 10' 22" | 4' 21" | 6.08* |
| Total number of stops in the setting | 39.23 | 12.48 | 28.00 | 9.10 | 14.00*** |
| Total number of stops on the first floor | 26.39 | 9.02 | 18.04 | 7.11 | 13.62*** |
| Total number of stops on the second floor | 12.85 | 4.50 | 9.96 | 3.01 | 7.92** |
| Total duration of stops in the setting ^c | 24' 20" | 13' 52" | 14' 52" | 7' 53" | 9.66** |
| Total duration of stops on the first floor ^c | 13' 13" | 7' 37" | 8' 19" | 5' 26" | 7.28** |
| Total duration of stops on the second floor ^c | 11' 7" | 7' 39" | 6' 33" | 4' 8" | 7.63** |

* $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$; M = mean; s.d. = standard deviation; ' = minute, '' = second. ^aDegrees of freedom = 1, 48; ^bmeasured in m²; ^cconverted to minutes and seconds after being analyzed in seconds.

of area covered, duration of use of the area and the number and duration of stops. As can be seen in Table 3, local visitors covered more ground than foreign visitors in the setting as a whole, and particularly on the first floor. On both floors, they spent more time, made more stops and spent more time on those stops than foreign visitors. Specifically, the rooms C, F, G and I on the first floor, which display the objects of Turkish glass and ceramic artistry, were the most frequently visited areas by locals relative to foreign visitors. Local visitors also made more stops and stayed longer than foreigners in those rooms. On the other hand, in terms of the area covered on the second floor, the difference between local and foreign visitors was not significant. Apparently, both groups were somewhat similarly interested in the customary displays of the Ottoman period.

Thus, the results generally supported our expectations regarding the significance of gender and locality for range and duration of movement measures. Again, as expected, other observations involving general behavior patterns seemed to be generally independent of gender and locality of visitors. That is, regardless of their demographic characteristics, visitors were more likely to prefer turning right (62% and 71% for the first and second floors, respectively) and to visit the first floor first (77%). However, the latter trend seemed to be stronger for the local visitors (92%) compared to the foreigners (62%), $\chi^2 = 6.93$, $P < 0.05$.

Discussion

The aim of our exploratory case study was to contribute to visitor behavior research in museums by examining the impact of visitors' gender and locality on circulation patterns. Assuming that visitors respond and react to the exhibited objects in museums at the emotional level (Prown 1994), and these emotions differ in relation to their personal characteristics (Hooper-Greenhill 2000) which in turn influence behavioral patterns (Mehrabian 1976), we aimed to explore whether circulation behavior differs among women/men and local/foreign users of the chosen setting – which houses a collection of exhibits that can be classified as gender-typed (Belk and Wallendorf 1994) and local-specific (Doering et al. 1997; Hooper-Greenhill 2000). Assuming that the specified groups of visitors would be in different levels of engagement with the exhibits because of their personal characteristics, we hypothesized that circulation patterns would differ between women and men, and local and foreign visitors.

The results indicated that, following clearly predictable routes through the setting, visitors differed in their circulation behavior involving the range and duration of movement patterns and those differences were, at least partially, attributable to visitors' personal characteristics specified as gender and locality. In line with our hypotheses, the results suggested that women and local users were more likely to be at a high level of engagement with the exhibitions. In general, differences in the visitors' locality characteristics (local/foreign) seemed to be more influential than gender differences. Our findings suggest that in the chosen setting, differences in the relevance of displays to the audiences at the community level might have been greater than those at the gender level.

Thus, differences involving the locality of visitors, in particular, influenced significantly the use of the physical space, in terms of such variables as the length of time spent, the number of stops made and the time spent on those stops. It should be

noted that familiarity with the museum could not have played a role in this finding because, as noted earlier, only first-time visitors were included in the study. Furthermore, the fact that interaction effects were not significant suggests that gender and locality effects tend to be independent of one another. That is, women, regardless of locality (or local visitors, regardless of gender), showed a higher level of engagement with particular exhibits than men (or foreign visitors).

Conversely, our study also supports the view that there are some general habitual behavior patterns which tend to be independent of the gender or the locality of visitors. In congruence with the findings of previous research, the visitors maintained right-orientation at first entering the exhibition setting (Shettel 1976; Melton 1988), walked through a straight-line path (Bitgood 1996) and rarely turned back to the areas they had visited previously (Bourdeau and Chebat 2001). In addition, an overwhelming majority of them paid attention to, and stopped in front of, the exhibits that were close to the entrance and the exits (see Pearce 1993; Melton 1988; Serrell 1997, 1998), and rarely completed the whole circuit of the island displays (Miles et al. 1988). The layout of the setting and its relation to the location of rooms, as physical factors (Klein 1993; Bourdeau and Chebat 2001; Melton 1988; Zucker and Clarke 1993), also seemed to affect visitors' average frequency of visiting the rooms. For example, the last rooms on the floors from the entrance were the least frequently visited areas.

Although these general behavior tendencies appeared to be independent of the considered demographic characteristics of visitors, it seems that at times they may interact with those behavior habits. For example, the tendency to visit the first floor first appeared to be stronger among the Turkish visitors relative to the foreigners, who may be likely to feel more pressure to see things most appealing to them in relatively more limited time. Hence, more foreign visitors relative to locals have chosen to start from the second floor, on which customary displays of Ottoman period are located.

Strengths and weaknesses of the present study and suggestions for future research

A basic limitation of this research involves the generalizability of the results, given the small sample size. In view of the fact that the behavior of only 52 visitors was observed at a particular museum, the results of this exploratory study need to be replicated at other museums using larger samples to tackle the issue of generalizability. In spite of the relatively small sample size our hypotheses, in general, were supported. Also, the fact that gender \times locality interaction effects were not significant may be said to increase the generalizability of the findings because, as noted above, the effects were relevant for women regardless of their locality, and for local visitors regardless of their gender. Furthermore, the converging evidence provided by multiple measures increases one's confidence in the findings, at least for the specific museum setting studied.

However, as noted above, further research in different museum settings is needed. It should also be noted that the present findings are based on first-time visits, controlling for the possible effect of repeat visits. Future studies can determine possible differences between first-time and repeat visitors. Future researchers are also advised to control for the possible influence of time pressure on visitors' circulation behavior. For example, as noted above, foreign visitors might have been under more

time pressure than locals to see the most appealing things in the shortest possible time, which might have influenced the range and duration of their circulation behavior. However, because time limitation does not seem likely to have played a role in the gender main effect, future studies can check whether possible time limitations of foreign tourists have accentuated the locality effect.

In spite of the above noted limitations, the present research also has some strong points. First, it aims to enhance the understanding of visitor experience by exploring the impact of gender and locality on visitor behavior, both of which have not been studied as frequently as other variables in museum studies. Secondly, the study utilized an observational method involving multiple behavior measures. Thirdly, the study is significant in that, to our knowledge, it is the first of its kind on museums in Turkey – a country with substantial potential for museum studies.

Implications of the findings

Implications of the findings may be considered at both theoretical and practical levels. At the theoretical level, the study provides support for the post-modernist museum model. As noted in the Introduction, within the idea of the modernist museum, museum objects were seen as sources of knowledge and accepted as having fixed and finite meanings (Hooper-Greenhill 2000, 1992). However, according to the post-modernist museum model the ‘meaning of an object lies both in the object itself, with all historical and structuralist/functionalist way in which this meaning is constituted, and equally in the process which the viewer carries out in relation to the object’ (Pearce 1993, 217). In this regard, Hooper-Greenhill (2000) states that post-modern thought puts the questions of ‘identity’ and ‘subjectivity’ on the current agenda of museums. Present findings are supportive of her argument that ‘subjectivity needs to be understood as something in process, and not as fixed and autonomous, outside history; subjectivity is always gendered, and based in class, race, ethnicity and sexual orientation’ (2000, 142).

Our findings suggest that the materiality of objects may interact with people from different origins and gender. This is an important issue that museum and exhibition designers should consider because, as noted by Hooper-Greenhill (2000, 108), visual culture is concerned with both display and visibility, and ‘to consider objects from the perspective of visual culture is to focus on the relationship between object and the subject – the seen and the seer’. In this encounter, how one perceives, interprets and makes meaning regarding the object seem to depend on one’s personal biography, cultural background and the social context within which one acts, as well as on the object imbued with meanings in its own context. Accordingly, it would be beneficial for future researchers to not only observe behavioral differences, but also to talk to visitors about how they perceive the objects and the overall experience.

It should be noted that there are two viewpoints in the interpretation of the objects in museums: that of the curator and those of the visitors (Hooper-Greenhill 2000). Therefore, it is important to consider who displays what, and for whom. However, the ‘what’ of this question may be in the center of the interaction, as the exhibits themselves and the conceptual/visual outcome that arise from their juxtapositions draw the direction and dimension of the museum experience for visitors (Belk and Wallendorf 1994; Hein 1998; Pearce 1998; Hooper-Greenhill 2000). That is, the material character and significance of an object may act as

determining factors in how it is perceived and interpreted by the subjects – diversified in personal, social and cultural characteristics. In this regard, present findings suggest that locality (or country of origin) and gender of visitors, which interrelate significantly with the materiality of objects, should be taken into consideration when planning and designing exhibitions.

Practical implications of the findings can be derived from the theoretical ones. Our findings suggest that museum designers and exhibition developers should consider the culture and gender relevance of objects in designing museums and exhibitions. Objects that may be more likely to appeal to a particular gender group may be exhibited together. For example, objects such as jewelry, ornaments and furniture that seem to have higher appeal to women (Pearce, 1998) may be exhibited close by, rather than being mixed with other objects high in male relevance. Furthermore, programs may be planned to increase the relevance of the objects to the visitors' gender or culture-related interests.

In summary, our findings point to the importance of the relevance of displayed objects to one's gender-related or country-of-origin-related cultural background. Present findings suggest that visitors seem to be attracted to objects that are novel, and yet somewhat familiar or relevant to their lives, in congruence with recent findings (e.g. Imamoğlu 2000). In line with the present argument, Doering et al. (1997) found that people who had prior knowledge and interest in World War II were more inclined to visit an exhibition related to it. They concluded that people attend exhibitions basically because they are interested in the subject, and they seek personal meaning in the museum experience.

Those findings imply that when planning, designing or advertising exhibitions, it is important to consider the meaning that different groups of visitors may derive from their museum experience, and try to make the relevance dimension salient to enhance the personal appeal of the objects. Thus, having insight into the importance of gender and locality, or other background characteristics, may enable designers and museum professionals to create a better fit between audiences, exhibitions and the overall design of museum settings. In addition, they may help to shape effective and efficient exhibition spaces for existing and future museums.

Acknowledgements

This paper is based on extended statistical and theoretical analyses of the data collected as part of a Master's thesis by the second author under the supervision of the first author. The authors thank the staff of Sadberk Hanim Museum for their help, support and patience during the study.

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