SAPIENZA UNIVERSITÀ DI ROMA

OPEN ACCESS

# Visitors' satisfaction and perceived affective qualities towards museums: the impact of recreational areas

# Soddisfazione dei visitatori e qualità affettive percepite dei musei: l'impatto delle aree ricreative

Uberta Ganucci Cancellieri[a,*], Sara Manca[b], Francesca Laurano[c], Erica Molinario[b], Alessandra Talamo[b], Annamaria Recupero[b], Marino Bonaiuto[b,d]

[a] *Dipartimento di Scienze della Società e della Formazione d'Area Mediterranea, Università per Stranieri "Dante Alighieri" di Reggio Calabria, Reggio Calabria, Italy*
[b] *Dipartimento di Psicologia dei Processi di Sviluppo e Socializzazione, Sapienza Università di Roma, Rome, Italy*
[c] *Psicologa*
[d] *CIRPA - Centro Interuniversitario di Ricerca in Psicologia Ambientale, Sapienza Università di Roma, Rome, Italy*

**ARTICLE INFO**

Submitted: 12 January 2018
Accepted: 15 February 2018
DOI: 10.4458/0135-01

*Corresponding author.
Uberta Ganucci Cancellieri
Università per Stranieri "Dante Alighieri" di Reggio Calabria
Via del Torrione, 95 - 89125 Reggio Calabria (Italy)
Phone: +39 0965 3696410
Email: ganucci@unistrada.it

**ABSTRACT**

This study investigates the role played by environmental factors on users' evaluation of a museum visit. An empirical research was carried out to detect visitors' satisfaction and assessment of museum experience, with a special focus onto its recreational areas (i.e., gift shop and restaurant/cafeteria). A sample of 160 visitors of two museums of Rome (50% Italians and 50% English mother tongue) completed a questionnaire including scales on affective qualities of places (Russell & Pratt, 1980), satisfaction towards the visit, and motives for the visit. Results showed the relevance of recreational areas, especially the gift shop, in facilitating the creation of a positive relationship between the visitor and the museum environment. Users' assessment was also associated to differences in visitors' mother tongue, age, educational level and motives underlying the visit.
**Keywords**: museum environment; museum experience; visitor studies; affective qualities of places; recreational areas.

**RIASSUNTO**

Questo studio indaga il ruolo svolto dai fattori ambientali sulla valutazione di una visita al museo da parte degli utenti. È stata condotta un'indagine empirica per rilevare la soddisfazione dei visitatori e la valutazione dell'esperienza museale, con un'attenzione particolare alle aree ricreative (negozio di *souvenir* e ristorante/bar). Un campione di 160 visitatori di due musei di Roma (50% italiani e 50% madrelingua inglese) ha completato un questionario comprendente scale sulle qualità affettive dei luoghi (Russell & Pratt, 1980), sulla soddisfazione e sulle motivazioni della visita. I risultati hanno mostrato che le aree ricreative, in particolare il negozio di *souvenir*, facilitano la creazione di una relazione positiva tra il visitatore e l'ambiente museale. La valutazione degli utenti è stata anche associata a differenze linguistiche e relative alle motivazioni alla base della visita.
**Parole chiave**: museo; esperienza museale; studi sui visitatori; qualità affettive dei luoghi; aree ricreative.

**Introduction**

In recent years the contribution of various disciplines and professionals to the management and preparation of museum exhibitions has encouraged the development of a new conception of museology (McCall & Gray, 2013). While the debate on the existence or not of a well-defined discipline is still open, a new field of interest called "visitor studies" is continuing to grow with the aim of creating a more systematic field study on museum visitors (Goulding, 2000; Kirchberg & Tröndle, 2012), considering the visitor experience as a complex of memory, personal drives, group identity, decision-making, and meaning-making strategies, as well as leisure preferences (Falk, 2016). Information derived from visitors' evaluations is useful for facilitating the museum design process, the development of expositions and programs/activities, the circulation of visitors through the setting, and the graphical design of the museum (Benefield, Bitgood & Shettel, 1993).

Historically, there is little connection among the various studies conducted within this field of research (Bonaiuto, Bilotta & Fornara, 2004). Scientific interest in museum visitor studies began early in the 1930s, with the studies of Robinson (1930) and Melton (1933) on the influence of museums' environmental characteristics on visitors' attention level and fruition behaviour. Screven (1969) and Shettel (1973) focused on the effects of museum visits on learning and education, particularly describing the cognitive and affective aspects of these experiences. The British Museum of Natural History in London became the first museum to adopt a systemic approach in investigating visitors' evaluation of museums (Alt, 1980; Griggs, 1981; Miles & Alt, 1979; Miles & Tout, 1978). The "naturalistic evaluation" approach, using qualitative methods to gather data, analyzed factors such as efficacy of exhibitions, visitors' wayfinding, and adequacy of labels, and stressed the holistic nature of the museum experience (Wolf, 1980). Attention to visitors' movements inside the museum has highlighted the importance of both helping visitors to orient themselves in the museum and to organize the museum path as effectively as possible (Bitgood, 2002, 2006).

More recently, museum studies began to draw upon environmental psychological concepts. From a "multi-place" perspective (Bonnes & Secchiaroli, 1995), the museum can be conceived as a system of places to be analyzed in terms of inclusiveness/exclusiveness and closeness/farness criteria. According to place theory (Canter, 1977), the "place" is conceived as the interface between physical properties of a target environment, its typical activities/behaviours, and the evaluations/representations of these activities concerning such an environment. Thus, the unit of analysis is conceptualized as the interface between the museum-place and the people that interact with it (e.g., Bonnes & Secchiaroli, 1995). Through a visitor-centred systemic lens, the museum-place appears to include different sub-places, such as the entrance, the exposition areas, the recreational areas, and the macro-architecture of the museum. These sub-places are interconnected and interdependent with reference to uses and behaviours that characterize the place itself.

Since the first level of response to the environment is affective (Ittelson, 1973), the direct emotional impact of a situation will influence the following relations with the environment. Russell and his collaborators have studied the conceptual structure used by people to describe the affective quality of environments (Russell & Lanius, 1984; Russell & Pratt, 1980) *via* a circumplex model of affective qualities attributed to environment, whose representation in a geometric space corresponds to a circular organization of those linguistic terms (qualifying adjectives) that indicate the emotional states induced by an environmental experience. This model includes two primary bipolar and orthogonal axes, i.e., "pleasant/unpleasant" and "arousing/sleepy", and two intermediate bipolar axes, i.e., "exciting/gloomy" and "relaxing/distressing". Validation studies were carried out in Spain (Corraliza & Aragones, 1988) and Italy (Perugini, Bonnes, Aiello, & Ercolani, 2002), taking into account social, cultural, and linguistic differences among countries: results seem to confirm the model's efficacy across different contexts.

Museum environment studies have particularly focused on museums as a source of emotions and affect. There is a significant relationship between the museum's perceived quality and emotions that are induced, which in turn affects visitors' satisfaction (De Rojas & Camarero, 2007). Studies comparing different kinds of museums have also highlighted the differences between the cognitive

and the affective dimension of the museum experience (Bartoli & Mastandrea 2010; Mastandrea, Bartoli, & Bove, 2007, 2009). A key point for the management of museum exhibitions is mirrored by the set of services fulfilling visitor's expectations. Thus, some aspects of a visitor's satisfaction may depend upon motivations and expectations concerning the visit (Pekarik & Schreiber, 2012). Easiness and fun, cultural entertainment, personal identification, historical reminiscences, and escapism seem to be key factors affecting visitors' satisfaction (Sheng & Chen, 2012).

Although museums are generally considered as places associated with a learning experience (Mastandrea & Maricchiolo, 2016; Wilde & Urhahne 2010), the "restorative" aspect of the museum experience has also been explored. Kaplan, Bardwell and Slakter (1993) have showed that comfort and wayfinding inside the building are two factors influencing the degree of restorativeness of the museum experience. Other studies (Bitgood, 2002; Hood, 1993) confirmed the influence of these factors on visitors' satisfaction. The museum experience has also been investigated in relation to leisure, indicating recreation as a relevant function for museums (Stephen, 2007).

However, studies on the impact of a museum's recreational areas on visitors' satisfaction are presently lacking. Therefore, the present research is developed with the goal of investigating the role played by environmental factors on users' evaluation of a museum visit, particularly focusing on the recreational areas (gift shop and restaurant/cafeteria). This was carried out via an empirical study to detect visitors' satisfaction and assessment of the museum experience.

*Aim and hypotheses*

The principal aim of this study was to investigate whether the satisfaction towards the museum experience (Bitgood, 2002; Hood, 1993; Sheng & Chen, 2012; De Rojas & Camarero, 2007) may be affected by visiting the museum's recreational areas. In addition, the research had the purpose to identify the possible evaluative differences between the main types of museum users as well as between the different visited areas; visitors' motivations for the visit was also explored (Pekarik & Schreiber, 2012). On the basis of previous research concerning satisfaction and perceived affective qualities of environments (e.g., hospitals, see Fornara, 2005, 2007), a peculiar attention was given to the affective responses that a museum environment can elicit from visitors. Thus, the goal was to verify whether the use of a museum's additional service might influence positively the perceived quality of the overall museum experience, by comparing visitors who visited the museum's recreational areas (restaurant/cafeteria and gift shop) versus visitors who did not.

More specifically, and consistent with the literature, it was expected that:

- H1) visitors who experienced the recreational areas (compared to those who did not) would show higher scores on positive affective qualities;
- H2) visitors who experienced the recreational areas (compared to those who did not) would show higher scores of affective qualities indicating activation (either in a positive - e.g., stimulating - or in a negative way - e.g., stressful) due to the higher variety of a) kinds of activity; and b) social actors experiencing the environment to achieve their different goals (Canter, 1977);
- H3) evaluative differences, due to language-related socio-cultural and experiential diversities, would emerge between Italian and English mother tongue visitors (which were included in the sample to generalize results to two main categories of Italian museum users);
- H4) visitors' evaluative responses would be influenced by: a) socio-demographic (gender, age, educational level) and time-related (length of present visit, frequency of visits to museums) variables; b) motivations underlying the visit (similar with respect to diverse types of environments, e.g., residential environments, Bonaiuto & Fornara, 2017).

## Method

*Participants and procedure*

The study was conducted in August and September 2006 on a sample of 160 visitors of two different art galleries (i.e., one of classical art and the other of modern art) in Rome, who filled in a self-report questionnaire at the museum exit, soon after their visit. 50% of the participants were Italian mother tongue and 50% were English mother tongue (i.e., British, Americans, Irish and Australians); 82 (51.3%) were men, and mean age was 40 years (range: 19-77 years).

Both art galleries have recreational facilities given by specific places such as a gift shop, a restaurant/cafeteria, and a multimedia room. Among the participants, 106 (66.3%) visited the gift shop; 98 (61.3%) went to the restaurant/cafeteria; 33 (20.6%) visited the multimedia room. The gallery of classical art is a small building situated in an ancient roman villa and surrounded by a large green area. The recent (at the time of data gathering) construction of a two-flight staircase (corresponding to the new entrance of the museum) allows the use of the basement for recreational structures, such as the cafeteria, the gift shop and the multimedia room. These areas are accessible only after the visit of the gallery. The modern art gallery is divided into four areas corresponding to the four parts of the building, two on the left and two on the right with reference to the main entrance, which is accessible from a staircase. There is also a secondary public entrance on another side, where visitors can have access to the cafeteria and the gift shop, and physically disabled people can have access to documentation services (library, photograph library, catalogue and archives of bibliographical information about the artists) and to the visit path.

*Measures*

Data were collected via a paper-and-pencil questionnaire which was prepared in two languages: Italian and English. The questionnaire contained two sections. The first section included a scale measuring the Perceived Affective Qualities (PAQs) of places. The English version of the questionnaire contained the 40-item original scale by Russell and colleagues (Russell & Lanius, 1984; Russell & Pratt, 1980); for the Italian version, the adapted validated items (Perugini, Bonnes, Aiello, & Ercolani, 2002) were used. Both versions measure 4 bipolar dimensions, (i.e., Relaxing *vs.* Distressing, Pleasant *vs.* Unpleasant, Exciting *vs.* Gloomy, and Arousing *vs.* Sleepy) and each of the resulting eight poles includes five adjectives in the English version and six adjectives in the Italian version. The rating scale was a Likert-type scale ranging from 0 (= extremely inaccurate to describe the place visited) to 6 (= extremely accurate to describe the place visited).

The second section of the questionnaire included:

a) a set of items on socio-demographic characteristics;

b) two items on time-related experience features: length (in minutes) of the present visit; frequency of visits to museums, ranging from 0 (= less than once a year) to 5 (= once a week or more);

c) one multiple-choice item concerning the reasons for the visit including: enjoyment for arts; cultural enrichment; duty; wish to learn; museum reputation; beauty of the environment; chance to be in company; reasons not included in the list (to be suggested by respondents);

d) a set of items measuring satisfaction towards the museum experience, ranging from 0 (= not at all satisfying) to 10 (= completely satisfying) and concerning the museum structure, the exposition, the exhibition, and the specific recreational areas such as the restaurant/cafeteria, the gift shop and the multimedia room.

*Statistical analyses*

In order to test the hypotheses of the study, the reliability of the 8 PAQ[1] dimensions and of the Overall Satisfaction towards the museum experience (including three items on satisfaction toward the museum structure, satisfaction toward the exposition, and satisfaction toward the exhibition areas, which have all been visited[2]) were calculated separately for the Italian and the English mother tongue samples. Aggregated indexes for each dimension were then created.

In order to test H1, H2 and H3, factorial ANOVAs 2 x 2 x 2 (mother tongue *by* gift shop visit *by* restaurant/cafeteria visit) were run to verify the unique or joint effects of visiting recreational areas (restaurant/cafeteria and gift shop) and of visitors' mother tongue on PAQs and Overall Satisfaction[3]. In order to verify H4, multiple regression analyses were performed by selecting the best predictors (Stepwise method) of aggregated PAQs[4] and Overall Satisfaction among socio-demographic variables (gender, age, and educational level[5]), time-related variables (frequency of museum visits[6]) and reasons underlying the visit[7].

## Results

*Reliability and mean scores of Overall Satisfaction and PAQs*

Internal consistency (Cronbach's Alphas) of PAQs and Overall Satisfaction showed acceptable results for both the Italian and the English mother tongue sub-sample (Table 1), thus allowing the computation of aggregated indexes (i.e., mean scores of composing items) for the considered dimensions, in order to use them as dependent measures in the inferential analyses.

Descriptive outcomes of PAQ mean scores in the overall sample showed the predominance of positive attributions to the museum. In particular (Table 2), the dimensions Pleasant, Exciting, Relaxing are the most accurate factors to describe the place (mean score > 3); on the contrary, the negative PAQs are not adequate to describe the museum as none showed a mean score higher than 1.5.

---

[1] The results of preliminary Principal Component Analyses performed on each PAQ and on Overall Satisfaction are not reported in this contribution. However, each dimension showed a mono-factorial structure. For psychometric features of the English and Italian PAQ scales, see Perugini, Bonnes, Aiello, & Ercolani, 2002.

[2] The items measuring satisfaction towards specific recreational areas were taken out of the analysis since a large portion of the sample did not visit all the areas.

[3] Preliminary analyses showed no significant differences between museums.

[4] In order to reduce the number of regression analyses, we considered as criteria the bipolar dimensions of PAQs, i.e. Relaxing *vs.* Distressing, Pleasant *vs.* Unpleasant, Exciting *vs.* Gloomy, and Arousing *vs.* Sleepy, as done in other studies (e.g., see Fornara, Bonaiuto, & Bonnes, 2007). Thus, we first reversed the items of the negative poles, then verified the internal consistency of the pools of items representing the bipolar dimensions (the Cronbach's Alphas ranged from .77 to .86), and finally computed the new bipolar PAQs aggregates.

[5] This variable has been dichotomized (graduated *vs.* not graduated) because among the non-graduated, just two of them attended the Secondary School, while the others attended the High School.

[6] The variable "length of the visit" was not included in the set of predictors because of the high number of missing data. However, the zero-order correlation of this variable with the criteria was really low (always lower than .13).

[7] The answers were coded in a dichotomous way (i.e., presence *vs.* absence of each reason). Answers showing a low balance between cells were excluded from the analyses, thus included answers were the following ones: "enjoyment for arts", "museum reputation", "cultural enrichment", "wish to learn", "beauty of the environment".

**Table 1. Cronbach's Alpha coefficients of Overall Satisfaction and PAQs (Italian and English mother tongue sub-samples)**

| | *Italian sample* (N=80) | *English mother tongue sample* (N=80) |
|---|---|---|
| Overall Satisfaction | .91 | .84 |
| Relaxing | .80 | .74 |
| Pleasant | .70 | .72 |
| Exciting | .83 | .76 |
| Arousing | .82 | .77 |
| Distressing | .78 | .75 |
| Unpleasant | .72 | .68 |
| Gloomy | .88 | .80 |
| Sleepy | .86 | .76 |

**Table 2. Mean scores and Standard Deviations of PAQs (N = 160, response scale = 0/6)**

| *Positive affective qualities* | *M* (*SD*) |
|---|---|
| Pleasant | 4.35 (.77) |
| Exciting | 3.60 (1.02) |
| Relaxing | 3.31 (1.02) |
| Arousing | 2.99 (1.08) |

| *Negative affective qualities* | *M* (*SD*) |
|---|---|
| Distressing | 1.40 (1.91) |
| Sleepy | 1.20 (1.02) |
| Gloomy | .99 (1.00) |
| Unpleasant | .75 (.70) |

*Influences of use of recreational areas and visitors' mother tongue on Overall Satisfaction and PAQs*

The results of factorial ANOVAs are as follows (see Table 3, Table 4, Table 5).

**Table 3. Mean scores and Standard Deviations of Overall Satisfaction related to visit to gift shop**

| | *Gift shop* | | |
|---|---|---|---|
| | *Yes* *M* (*SD*) | *No* *M* (*SD*) | *Total* *M* (*SD*) |
| Overall Satisfaction | 8.05 (1.15) N = 105 | 7.01 (1.21) N = 54 | 7.70 (1.26) N = 159 |

Range: from 0 = not at all satisfying to 10 = completely satisfying

**Table 4. Mean scores (and SD) of the PAQs in relation to the significant main effects (in bold) of the design variables**

| *PAQs* | *Visitors' mother tongue* | | *Gift Shop Visit* | | *Restaurant/cafeteria Visit* | |
|---|---|---|---|---|---|---|
| | *Italian* | *English* | *Yes* | *No* | *Yes* | *No* |
| Relaxing | **3.06 (1.17)** | **3.56 (.80)** | 3.40 (.99) | 3.14 (1.08) | **3.40 (.93)** | **3.17 (1.16)** |
| Pleasant | 4.28 (.82) | 4.42 (.72) | **4.51 (.67)** | **4.04 (.86)** | **4.48 (.72)** | **4.15 (.81)** |
| Arousing | **2.79 (1.15)** | **3.19 (.96)** | **3.15 (1.07)** | **2.68 (1.05)** | 2.99 (1.06) | 2.98 (1.12) |
| Distressing | **1.25 (.96)** | **1.54 (.85)** | 1.39 (.90) | 1.41 (.95) | **1.27 (.87)** | **1.61 (.96)** |

Range: from 0 = extremely inaccurate to 6 = extremely accurate

**Table 5. Mean scores (and SD) of the PAQs in relation to the significant interaction effects (in bold) of the design variables**

| *PAQs* | *Visitors' mother tongue* | *Gift shop visit* | | *Restaurant/cafeteria visit* | |
|---|---|---|---|---|---|
| | | *Yes* | *No* | *Yes* | *No* |
| Relaxing | Italian | **3.08 (1.10)** | **3.05 (1.28)** | 3.18 (1.06) | 2.85 (1.32) |
| | English | **3.70 (.77)** | **3.25 (.79)** | 3.63 (.70) | 3.46 (.92) |
| Pleasant | Italian | **4.34 (.69)** | **4.19 (1.03)** | 4.41 (.75) | 4.07 (.92) |
| | English | **4.67 (.62)** | **3.87 (.59)** | 4.55 (.69) | 4.22 (.71) |
| Exciting | Italian | **3.69 (.99)** | **3.52 (1.20)** | 3.72 (1.04) | 3.46 (1.12) |
| | English | **3.89 (.95)** | **2.88 (.67)** | 3.48 (1.04) | 3.72 (.91) |
| Unpleasant | Italian | **.62 (.61)** | **.75 (.84)** | .58 (.56) | .83 (.87) |
| | English | **.65 (.61)** | **1.22 (.74)** | .83 (.76) | .83 (.60) |
| Gloomy | Italian | **.65 (.75)** | **.78 (1.08)** | **.53 (.63)** | **1.00 (1.15)** |
| | English | **1.06 (.93)** | **1.78 (1.08)** | **1.46 (1.10)** | **1.02 (.85)** |
| Sleepy | Italian | **.88 (1.01)** | **.87 (1.06)** | **.78 (.89)** | **1.05 (1.22)** |
| | English | **1.35 (.90)** | **1.95 (.82)** | **1.69 (1.00)** | **1.31 (.72)** |

Range: from 0 = extremely inaccurate to 6 = extremely accurate

*Overall Satisfaction.* Only the main effect of gift shop visit was significant ($F_{1,159} = 21.551$, $p<.001$): people who visited the gift shop ($M = 8.05$) were more satisfied than people who did not ($M = 7.01$).

*Relaxing.* A significant main effect of the visitors' mother tongue emerged ($F_{1,159} = 9.216$, $p<.05$). The restaurant/cafeteria visit ($F_{1,159} = 3.357$, $p = .069$) and the interaction between visitors' mother tongue and gift shop visit ($F_{1,159} = 3.727$, $p = .055$) were very close to significance. English mother tongue visitors perceived the environment as more relaxing ($M = 3.56$) than the Italian visitors ($M = 3.06$). People who visited the restaurant/cafeteria showed a tendency to perceive the place as more relaxing ($M = 3.40$) than people who did not ($M = 3.17$). English mother tongue visitors had a higher score for relaxing quality ($M = 3.70$) than the Italian visitors ($M = 3.06$; among those visitors who visited the gift shop; however, this difference was lower among those who did not visit the gift shop. Furthermore, the relaxing effect of visiting the gift shop occurred only among English mother tongue visitors.

*Pleasant.* The significant main effects of gift shop visit ($F_{1,159} = 9.076$, $p<.05$), restaurant/cafeteria visit ($F_{1,159} = 5.985$, $p<.05$), and the effect of the interaction between visitors' mother tongue and gift shop visit ($F_{1,159} = 8.839$, $p<.05$) emerged. People who visited the restaurant/cafeteria perceived the environment as more pleasant ($M = 4.48$) than visitors who did not ($M = 4.15$). People who visited the gift shop attributed higher scores of pleasantness to the museum ($M = 4.51$) than people who did not visit it ($M = 4.04$). Finally, the perception of museum pleasantness was not influenced by the visit to the gift shop among Italian visitors; on the contrary, English mother tongue visitors perceived the museum as more pleasant if they had visited the gift shop ($M = 3.87$ *vs.* $M = 4.67$).

*Exciting.* The significant main effects of gift shop visit ($F_{1,159} = 10.258$, $p<.05$) and the

significant interaction between language and gift shop visit ($F_{1,159} = 8.537$, $p<.05$) emerged. People who visited the gift shop perceived the museum as more exciting ($M = 3.79$) than people who did not ($M = 3.23$). English mother tongue visitors perceived the museum as more exciting if they had visited the gift shop ($M = 3.89$ *vs.* $M = 2.88$): this did not happen among the Italian visitors ($M = 3.68$ *vs.* 3.52).

*Arousing*. Only the main effect of gift shop visit was significant ($F_{1,159} = 5.583$, $p<.05$): people who visited the shop perceived the museum as more arousing ($M = 3.15$) than people who did not ($M = 2.68$).

*Distressing*. Only the main effect of restaurant/cafeteria visit resulted significant ($F_{1,159} = 9.309$, $p<.05$): visitors who visited the restaurant/cafeteria showed lower scores in the distressing dimension ($M = 1.27$) than people who did not ($M = 1.61$).

*Unpleasant*. The main effects of language ($F_{1,159} = 4.084$, $p<.05$) and gift shop visit ($F_{1,159} = 6.223$, $p<.05$), and their interaction ($F_{1,159} = 4.906$, $p<.05$) were significant. English mother tongue visitors assessed the museum as more unpleasant ($M = .83$) than Italian visitors ($M = .67$). People who visited the gift shop perceived the museum as less unpleasant ($M = .64$) than people who did not ($M = .97$). The significance of the interaction suggests that English mother tongue visitors perceived the museum as more unpleasant only among those who did not visit the gift shop, whereas this pattern did not occur among those who visited the gift shop ($M = 1.22$ *vs.* $M = .65$).

*Gloomy*. The main effects of visitors' mother tongue ($F_{1,159} = 19.347$, $p<.001$) and gift shop visit ($F_{1,159} = 4.692$, $p<.05$), and the interaction between visitors' mother tongue and gift shop visit ($F_{1,159} = 7.212$, $p<.05$) and between visitors' mother tongue and restaurant/cafeteria visit ($F_{1,159} = 15.507$, $p<.001$) were significant. English mother tongue visitors perceived the museum as gloomier ($M = 1.28$) than did Italians ($M = .70$). People who entered the gift shop perceived the museum as less gloomy ($M = .87$) than people who did not enter it ($M = 1.24$). The significance of interaction suggests that, among English mother tongue visitors, only those who did not visit the gift shop ($M = 1.78$) perceived the environment as gloomier; this did not appear among those who visited the shop ($M = 1.06$). Finally, English mother tongue visitors evaluated the museum as gloomier if they visited the restaurant/cafeteria, whereas Italians who visited this area perceived the museum as less gloomy than the Italians who did not ($M = 1.46$ *vs.* $M = .53$).

*Sleepy*. The main effect of visitors' mother tongue ($F_{1,159} = 18.204$, $p<.001$) and the interactions between visitors' mother tongue and gift shop visit ($F_{1,159} = 5.900$, $p < .05$), and between visitors' mother tongue and restaurant/cafeteria visit ($F_{1,159} = 6.871$, $p<.05$) emerged. Italian visitors perceived the museum as less sleepy ($M = .88$) than English mother tongue visitors ($M = 1.54$). English mother tongue visitors who did not visit the gift shop perceived the museum as sleepier ($M = 1.95$) than both Italians ($M = .88$) and English mother tongue ($M = 1.35$) visitors who visited the gift shop. Finally, English mother tongue visitors perceived the museum as sleepier if they had visited the restaurant/cafeteria ($M = 1.69$) *vs.* those who didn't visit it ($M = 1.31$); on the contrary, Italian visitors perceived the museum as less sleepy if they had visited ($M = .78$) the restaurant/cafeteria *vs.* those who didn't visit it ($M = 1.05$).

*Influences of socio-demographic, time-related, and motivational variables on Overall Satisfaction and aggregated PAQs*

The multiple regression analyses produced the following results.

*Overall Satisfaction* (see Table 6). Age, "enjoyment for arts", "museum reputation" and "wish to learn" were significant predictors: Overall Satisfaction towards the museum increases with increasing age, with motivations related to enjoyment for arts and to museum reputation, and with absence of the motivation related to the wish to learn.

**Table 6. Multiple Regression Model of Overall Satisfaction on demographic, time-related and motivational variables**

| $R^2$ = .14 | $F$ (4. 151) = 6.310 ($p$<.001) | |
|---|---|---|
| *Predictor* | *ß* | *p* |
| Age | .24 | <.01 |
| Enjoyment for arts | .23 | <.01 |
| Museum reputation | .20 | <.05 |
| Wish to learn | -.17 | <.05 |

The results of regression analyses with aggregated PAQs as criterion and demographic, time-related and motivational variables as predictors are reported in Table 7.

**Table 7. Multiple Regression aggregated PAQs on demographic, time-related and motivational variables**

| *PAQ* | *Predictor* | *ß* | *F (9.146)* | $R^2$ |
|---|---|---|---|---|
| Relaxing *vs.* Distressing | Age | .19* | 1.309 | $R^2$ =.08 |
| | Educational level | .17* | | |
| Pleasant *vs.* Unpleasant | Age | .25** | 2.002* | $R^2$ =.15 |
| Exciting *vs.* Gloomy | Age | .23** | 2.777** | $R^2$ =.15 |
| | Enjoyment for arts | .19* | | |
| | Educational level | -.18* | | |
| Arousing *vs.* Sleepy | Age | .35*** | 4.174*** | $R^2$ =.21 |
| | Enjoyment for arts | .21** | | |
| | Educational level | -.21** | | |

Note. * $p$<.05; ** $p$<.01; ***$p$<.001

*Relaxing vs. Distressing.* As for the dimension *Relaxing vs. Distressing*, age and educational level emerged as significant predictors: older adults and more educated visitors perceived the place as more relaxing than, respectively, younger people and those who were not graduated.

*Pleasant vs. Unpleasant.* As for the dimension *Pleasant vs. Unpleasant*, the only significant predictor was age: older visitors perceived the museum as more pleasant.

*Exciting vs. Gloomy.* As for the dimension *Exciting vs. Gloomy*, age, "enjoyment for arts" and educational level emerged as significant predictors. Specifically, i) younger visitors perceived the museum as more exciting than older ones; ii) people who visited the museum for "enjoyment for arts" judged the museum as more exciting than visitors who were not driven by this motivation; and finally, iii) graduated visitors rated the museum as more exciting than the not graduated ones.

*Arousing vs. Sleepy.* As for the dimension *Arousing vs. Sleepy*, a similar picture to the previous dimension emerged. In fact, age, "enjoyment for arts" and educational level emerged again as significant predictors. Specifically, i) younger visitors perceived the museum as more arousing than older ones; ii) people who visited the museum for "enjoyment for arts" judged the museum as more arousing than visitors who were not driven by this motivation; and finally, iii) graduated visitors rated the museum as more arousing than the not graduated ones.

## Discussion and Conclusion

On the whole, the outcomes confirm the first hypothesis (H1), since there is empirical evidence that visiting recreational areas positively influences satisfaction and perceived affective

qualities towards the museum. In particular, people who visited the gift shop perceived the museum as more satisfying, more pleasant, more exciting and more arousing than people who did not, suggesting that a visit to the gift shop could turn the museum visit into a more positive and satisfying experience, thus confirming the importance of a gift shop inside the museum structure, possibly because many visitors expect to get a souvenir from their visit (Bitgood, 2002). These results are consistent with outcomes of studies concerning perceived affective qualities related to hospitals' spatial-physical humanization levels, showing that more humanized environments are associated with positive affective qualities (Bonaiuto, Bilotta & Fornara, 2004). Visitors who came into the restaurant/cafeteria perceived the museum environment as more relaxing and more pleasant than people who did not. It is likely that the break represented by the restaurant/cafeteria helped the visitors to refresh their physical and attentive (i.e., cognitive) resources. In other words, this break may trigger a "restorative" effect in the light of recover from attentional fatigue (see Hartig & Staats, 2006). However, the effects of the visit to the gift shop were more systematic and pervasive than the effects of the visit to the restaurant/cafeteria. Although results confirm H1, the correlational nature of this data set does not allow to argue for a causal relationship of the visit to recreational areas on satisfaction toward the museum experience. In other words, visitors who choose to use recreational areas may be different from other visitors on some dimensions (e.g., they may have budgeted more time for the visit or they may be fonder of museums). For the same reason, the reverse path, i.e., those who visited the recreational areas (restaurant/cafeteria or gift shop) are those who were more satisfied with (and judged more positively) the museum experience, cannot be excluded. Future experimental both field and laboratory studies are welcome as they may properly clarify such causal paths.

As regards the second hypothesis (H2), it was not corroborated by data. The attribution of passive *vs.* active affective qualities to the environment (regardless of their positive or negative connotation) has emerged as a discriminative dimension between patients and staff in hospital studies (see Fornara, 2005). Similarly, in this research higher scores on affective qualities indicating activation (either in a positive or in a negative way) were expected in those who visited the recreational areas, but this pattern did not appear. Therefore, a role and perspective difference which was present in the hospital study (patients *vs.* staff), but which was not present in this museum study (visitors who simply visited *vs.* those who did not visit the recreational areas), may be crucial in triggering such experience differences over and above the mere activity difference.

As concerns the third hypothesis (H3), significant differences emerged in some of the affective qualities between the Italian and the English mother tongue visitors. More specifically, Italian visitors perceived the museum as less relaxing than English mother tongue visitors; but with reference to the negative affective qualities, English mother tongue visitors perceived the museum as more unpleasant, gloomier and sleepier than Italian visitors. This finding could be due to the fact that English mother tongue visitors evaluated their experience bearing in mind their own countries' museums (typically including a broader array of services that ease an active interaction between the environment and its users) as a frame of reference. An alternative interpretation could be related to the higher degree of tiredness among English mother tongue visitors because of language difficulties as foreigners. In any case, these explanations need to be tested via more focused studies. The present data set however has the merit of highlighting this kind of effect as relevant, though too often unattended or underestimated by museums and visitor studies' state of the art. Another difference emerged from the interaction between visitors' mother tongue and visits to recreational areas: Italians perceived the museum experience as less gloomy and less sleepy than English mother tongue visitors, if they came into the restaurant/cafeteria; on the other hand, English visitors perceived the museum as more pleasant and exciting than Italians, if they had visited the gift shop. This result could be related to cultural differences between the two samples: it is possible to assume that for the Italian visitors the positive influence of visiting the restaurant/cafeteria on the overall evaluation of the museum experience is related to the prominence of food within the Italian culture. On the contrary, the chance for English mother tongue visitors to buy a souvenir as memory and symbol of their

entire Italian travel experience could explain their more positive overall evaluation if they visited the gift shop rather than the restaurant/cafeteria. Again, further studies are needed in order to deepen the roots of such a differential specific effect of the various recreational areas crossed by the language status of the visitors (which may imply role differences under many respects).

As regards the fourth hypothesis (H4), concerning the influence of socio-demographic (gender, age, educational level), time-related (length of the visit, frequency of visits to museums) and motivational variables on satisfaction and perceived affective qualities, on the one side age and education differences, and on the other side some motives underlying the visit, all proved to be discriminating dimensions. A younger age corresponded to the attribution of distressful and unpleasant qualities to the museum, while as the age grew up the overall satisfaction towards the visit increases, in line with other studies (Mastandrea & Maricchiolo, 2016).

As far as educational level is concerned, more educated visitors attributed more passive qualities to the museum environment. This could be the consequence of a low congruence between opportunities (knowledge, education, recreation) offered by the museum environment and specific needs and expectations of young and educated users (Bonaiuto, Bilotta & Fornara, 2004). In particular, the lack of technological support to facilitate a people-environment transaction with the place-museum may elicit a perception of stillness and scarce attractiveness of the experience, especially among those (i.e., more educated and/or young people) who are more used to multimedia, hands-on, dynamic, interactive displays and exhibits. As regards motivations underlying the visit, people who visited the museum for their enjoyment for arts perceived the museum experience as more satisfying, exciting and arousing than other visitors.

Overall, further research is needed in order to provide evidence for these presumptions. Despite the clear association between the use of recreational areas and the assessment of museum experience, a limit of this study concerns its impossibility to prove a causal direction between them. The difficulty of an experimental design in this context (i.e., a random assignment of visitors to conditions) suggests being cautious about the interpretation of such correlations. Additionally, the methodology has not considered the differences among various types of museums, which typically attract different types of visitors. It is therefore difficult to generalize the results of this study. Moreover, the next research steps should explore the different aspects of recreational areas – e.g., quality of interaction with front-line personnel, ability of the recreational area to respond to visitors' needs, maintenance of such areas, etc. (Bitgood & Loomis, 1993) – as well as the design attributes of recreational areas promoting visitors' satisfaction and positive perception of museums, in the light of increasing the restorative power of museum experiences. In the future, more studies should be conducted that take these environmental characteristics into account and control for them when assessing the effect of recreational areas on overall satisfaction toward the museum experience.

The use of museums' additional services seems to be a major tendency in many countries (Bitgood, 2002); although this tendency could be criticized because it may draw the attention of visitors away from the exhibition itself, when the additional services are absent or poor (qualitatively and/or quantitatively), the contents of the exhibition, even if valuable, are inadequate in themselves to produce an overall positive experience. Furthermore, quantity, quality, and innovation of services supporting the traditional fruition of a museum can catch the attention of potential users who are usually not attracted by the museum experience and may however improve under several respects the visit experience of different museums' visitors.

Empirical evidence seems to confirm at least partially the main aim that motivated this study, i.e., exploring the impact of the recreational areas on the satisfaction with the museum visit and on the positive evaluation of the museum experience. However, because of the correlational nature of the research design, it would be useful to conduct further experimental studies in order to verify the causal relation between the considered variables. Together with other differences of evaluation emerged in this study – due to visitors' mother tongue (Italian *vs.* English), age, educational level, and reasons underlying the visit – the findings of this study support management choices in the direction of a more complex and multifaceted museum design, in order to satisfy visitors' expectations in

terms of opportunities and affordances provided by the spatial-physical environment (see Gibson, 1979; Bonnes & Secchiaroli, 1995).

**Author Contributions**
M.B. designed the study and supervised all phases. F.L. collaborated with data gathering. S.M. analyzed the data. U.G.C., E.M., A.R., A.T., and M.B. collaborated at data discussion and interpretation. U.G.C., E.M., A.R., A.T., and M.B. collaborated in writing and revising draft and final versions.

**Compliance with Ethical Standards**

**Conflict of interest**
The authors declare that they have no competing interests.

**Funding**
The author(s) received no financial support for the research, authorship, and/or publication of this article.

**Ethical approval**
All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

**Informed Consent**
Informed consent was obtained from all individual participants included in the study.

## References

Alt, M.B. (1980). Four years of visitor surveys at the British Museum (Natural History) 1976-79. *Museums Journal, 80*, 10-19.

Bartoli, G., & Mastandrea, S. (2010). L'esperienza dell'arte nel museo. *Note psicologiche. PsicoArt. Rivista di arte e psicologia*, 1, 1-41. doi:10.6092/issn.2038-6184/2094

Benefield, A., Bitgood, S., & Shettel, H. (1993). Visitor studies: Theory, research and practice. *Curator*, *36*(3), 238-240.

Bitgood, S. C. (2002). Environmental psychology in museums, zoos and other exhibition centers. In R. 3-B. Bechtel, & A. Churchman (Eds.), *Handbook of Environmental Psychology* (pp. 461-480). New York: Wiley.

Bitgood, S. C., & Loomis, R. J. (1993). Introduction: Environmental Design and Evaluation in Museums. *Environment and Behavior*, *25*(6), 683-697.

Bitgood, S. C. (2006) An Analysis of Visitor Circulation: Movement Patterns and the General Value Principle. *Curator: The Museum Journal, 49*(4), 463–475. doi: 10.1111/j.2151-6952. 2006.tb00237.x

Bonaiuto, M., Bilotta, E., & Fornara, F. (2004). *Che cos'è la psicologia architettonica ("What is Architectural Psychology?")*. Rome: Carocci.

Bonaiuto, M., & Fornara, F. (2017). Residential Satisfaction and Perceived Urban Quality. In J. Stein (Ed.), *Reference Module in Neuroscience and Biobehavioral Psychology* (pp. 1-5). Oxford: Elsevier. ISBN 9780128093245. doi:10.1016/B978-0-12-809324-5.05698-4

Bonnes, M., & Secchiaroli, G. (1995). *Environmental Psychology*. London: Sage.

Canter, D. (1977). *The psychology of place*. London: Architectural Press.

Corraliza, J. A., & Aragones, J. I. (1988). Assessment of emotional environmental dimension: The affective quality attributed to several places in Madrid. In D. Canter, J. Correia Jesuino, L. Soczka, & G. M. Stephenson (Eds.), *Environmental social psychology* (pp. 160-171). Dordrecht (NL): Kluwer Academic Publishers.

De Rojas, C., & Camarero, C. (2007). Visitors' experience, mood and satisfaction in a heritage context: Evidence from an interpretation center. *Tourism Management, 29*(3), 525-537. doi: 10.1016/j.tourman.2007.06.004

Falk, J. H. (2016). *Identity and the Museum Visitor Experience*. London: Routledge.

Fornara, F. (2005). Users' Evaluative Responses to Spatio-Physical Humanization: The Case of Hospital Environments. In B. Martens, & A. G. Keul (Eds.), *Designing Social Innovation: Planning, Building, Evaluating* (pp. 231-240). Gottingen (Germany): Hogrefe & Huber.

Fornara, F., Bonaiuto, M., & Bonnes, M. (2007). Soddisfazione ambientale e qualità affettive percepite in relazione al grado di umanizzazione fisico-spaziale delle strutture ospedaliere. *Rassegna di Psicologia*, 24, 27-50. (ISSN 1125-5196)

Gibson, J. J. (1979). *The ecological approach to visual perception*. Boston: Houghton-Mifflin.

Goulding, C. (2000). The museum environment and the visitor experience. *European Journal of Marketing, 34*(3/4), 261-278. doi: 10.1108/03090560010311849

Griggs, S. (1981). Formative evalutation of exhibits at the British Museum. *Curator: The Museum Journal, 24*(3), 189-202.

Hartig, T., & Staats, H. (2006). The need for psychological restoration as a determinant of environmental preferences. *Journal of Environmental Psychology, 26*, 215-226. doi: 10.1016/j.jenvp.2006.07.007

Hood, M. G. (1993). Comfort and caring: two essential environmental factors. *Environment and Behavior, 25*(6), 710-724. doi: 10.1177/0013916593256003

Ittelson, W. H. (1973). *Environment and Cognition*. New York: Academic Press.

Kaplan, S., Bardwell, L. V., & Slakter, D. B. (1993). The museum as a restorative environment. *Environment and Behavior*, *25*(6), 725-742. doi: 10.1177/0013916593256004

Kirchberg, V., & Tröndle, M. (2012). Experiencing exhibitions: A review of studies on visitor experiences in museums. *Curator: The Museum Journal*, *55*(4), 435-452. doi: 10.1111/j.2151-6952.2012. 00167.x

Mastandrea, S., & Maricchiolo, F. (2016). Introduction. In S. Mastandrea, & F. Maricchiolo (eds.). *The Role of the Museum in the Education of Young Adults. Motivation, Emotion and Learning* (pp. 5-7). Roma: Roma TrE-Press. ISBN 978-88-97524-81-6.

Mastandrea, S., Bartoli, G., & Bove G. (2007). Learning through ancient art and experiencing emotions with contemporary art: Comparing visits in two different museums. *Empirical Studies of the Arts*, *25*(2), 173-191.

Mastandrea, S., Bartoli, G., & Bove, G. (2009). Preferences for ancient and modern art museums: Visitor experiences and personality characteristics. *Psychology of Aesthetics, Creativity, and the Arts*, *3*(3), 164-173. doi:10.1037/a0013142

McCall, V., & Gray, C. (2013). Museums and the 'new museology': theory, practice and organisational change. *Journal Museum Management and Curatorship, 29*(1), 19-35. doi: 10.1080/09647775.2013.869852

Melton, A. (1933). Studies of installation at the Pennsylvania Museum of Art. *Museum News, 10*(14), 5-8.

Miles, R., & Alt, M. (1979). British Museum: A new approach to the visiting public. *Museum Journal, 78*(4), 158-162.

Miles, R., & Tout, A. (1978). Human biology and the new exhibition scheme in the British Museum. *Curator: The Museum Journal, 21*(1), 36-50.

Pekarik, A.J., & Schreibe, J.B. (2012). The Power of Expectation. *Curator: The Museum Journal, 55*(4), 487-496. doi: 10.1111/j.2151-6952.2012. 00171.x

Perugini, M, Bonnes, M., Aiello, A., & Ercolani, A. P. (2002). Il modello circonflesso delle qualità affettive dei luoghi: Sviluppo di uno strumento valutativo italiano ("The circumplex model of affective qualities of placet: Development of an Italian assessment tool"). *Testing Psicometria Metodologia, 9*(4), 131-152.

Robinson, E. (1930). Psychological problems of the science museum. *Museum News, 8*(5), 9-11.

Russell, J. A., & Lanius, U. F. (1984). Adaptation level and the affective appraisal of environments. *Journal of Environmental Psychology, 4*(2), 119-135. doi: 10.1016/S0272-4944(84)80029-8

Russell, J. A., & Pratt, G. (1980). A description of the affective quality attributed to environments. *Journal of Personality and Social Psychology, 38*(2), 311-322. doi: 10.1037/0022-3514.38.2.311

Screven, C. G. (1969). The museum as a responsive learning environment. *Museum News, 47*(10), 7-10.

Screven, C. G. (1974). *The Measurement and facilitation of learning in the museum environment: An experimental analysis.* Washington DC: Smithsonian Press.

Screven, C. G. (1975). The effectiveness of guidance devices on visitor learning. *Curator: The Museum Journal, 18*(3), 219-243. doi: 10.1111/j.2151-6952. 1975.tb01257.x

Sheng, C.-W., & Chen, M.-C. (2012). A study of experience expectations of museum visitors. *Tourism Management, 33*(1), 53-60. doi: 10.1016/j.tourman.2011.01.023

Shettel, H. (1973). Exhibits: Art form or educational medium?. *Museum News, 52*, 32-41.

Stephen, A. (2007). The Contemporary Museum and Leisure: Recreation as a Museum Function. *Journal Museum Management and Curatorship, 19*(3), 297-308. doi: 10.1080/09647770100601903

Wilde, M., & Urhahne, D. (2010). Museum learning: a study of motivation and learning achievement. *Journal of Biological Education, 42*(2), 78-83. doi: 10.1080/00219266.2008.9656115

Wolf, R. (1980). A naturalistic view of evaluation. *Museum Journal, 58*(1), 39-45.

## Acknowledgements

Authors wish to thank Prof. Gary W. Evans and Dr. Conrad Baldner for their English language revision.