Considerations on Visitor Satisfaction as Part of an Integral Evaluation Methodology

Ir a la versión en español

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ABSTRACT

This RESEARCH ARTICLE presents the application of a model of museum visitors' satisfaction which was developed through visitor studies in four museums in Argentina. The model aimed to identify what influence the visitors' own characteristics, as well as their perception of the experience the museum offers them, had on their overall satisfaction. Data was collected in two stages: one before the visit and another one immediately after. This process permitted the identification of certain common patterns to all the case studies in relation to visitors' satisfaction, a necessary condition to better understand their needs and behavior, in order to generate memorable experiences.

KEY WORDS

visitor satisfaction; visitor studies; museums; Argentina

INTRODUCTION

Museums need to know and understand their public in order to properly address their needs, which has led to visitor and satisfaction studies acquiring such an important role in their management. Due to the inherent subjectivity of

the concept of *satisfaction*, studying it is no easy task. However, to advance this understanding and, thus, that of the visitor's own behavior, it is necessary to extract and define the common or divergent characteristics of the visitor experience, an under addressed issue in this type of study.

This work was carried out in the context of a wider-ranging scientific research, linked to the influence of environmental conditions (lighting and hygrothermal conditions) on visitor satisfaction in museums, which was framed in specific projects related to studying and evaluating the preservation and exhibition of material heritage, which had been requested by instances from different museum management settings (Dirección Nacional de Museos, Dirección de Patrimonio de la Provincia de Tucumán and the Archdiocese of Tucumán).

The study of overall museum satisfaction, or the level of satisfaction visitors reach upon completing their visit, is a field of museology still in development, hence the corresponding parameters may vary according to the author, though it should be said it comprises all those variables inherent to the visitor and the museum which influence them, whether positively or negatively (Bazán, Ajmat & Sandoval, 2018).

The concept of satisfaction has received numerous definitions that vary significantly among themselves (Bigné & Andreu, 2004; De Rojas & Camarero, 2008; McMullan & O'Neill, 2010), without having, as yet, achieved a consensus. However, two great blocks can be distinguished, which encompass all the hitherto proposed definitions throughout its protracted study:

> *1) Cognitive focus:* Initially and for several decades, satisfaction was viewed as: *a*) a cognitive state; *b*) influenced by prior knowledge; and *c*) of a relative nature, the result of a comparison between a subjective experience and a previous frame of reference (De Rojas & Camarero, 2008). This focus is known as the "expectations disconfirmation[1] paradigm" or "disconfirmation of expectations" (Oliver, 1981, 1997). According to that research, consumers calculate their product satisfaction by comparing their previous expectations with the perceived outcome in performance or functioning (Bagozzi, Gopinath & Nyer, 1999).

[1] *Disconfirmation* can be defined as the difference between what users expect of a product or service, and what they perceive after experimenting it. If what they perceive is superior to their expectations, their disconfirmation will be positive. If, on the contrary, it is lower, it will be negative. If they are even, disconfirmation will be neutral (McMullan & O'Neill, 2010; Olson & Peter, 2006).

2) Dual cognitive-affective focus: Today a growing number of researchers recognize the dual character of satisfaction, adding the emotions experimented to the traditional cognitive focus as another key factor in its formation (McMullan & O'Neill, 2010). Bigné and Andreu (2004), who themselves made a compilation of definitions extracted from specialized bibliography, define customer satisfaction as "a cognitive-affective state resulting from cognitive evaluations (including disconfirmation); as well as the emotions provoked, in turn, by these cognitive evaluations and all triggering behavioral responses"[2] (Bigné & Andreu, 2004, p. 95).

This work, along with the theoretical model presented herein, were developed in the framework of the cognitive-affective focus, adopting the definition for satisfaction proposed by Bigné & Andreu (2004).

In addition to the cognitive and affective psychological variables, there are two more groups of variables which literature considers important in the formation of satisfaction: sociodemographic and environmental, both of which bear great influence on visitor behavior and satisfaction (Olson & Peter, 2006). It is thus for sociodemographic because, as has been noted, we do not perceive reality directly, but instead through a set of conventions, schemes and stereotypes that vary from one culture to another and over time (Falk & Dierking, 2016; Dodd, Jones, Sawyer & Tseliou, 2012). Those variables tend to receive a descriptive statistical analysis in museum satisfaction studies, without going further into possible relations between them and other data obtained (Bigné & Andreu, 2004; De Rojas & Camarero, 2008; Góes Ferreira Lima Verde, Oliveira Arruda & Moura, 2010; Gosling, Silva & De Freitas, 2016). Although this offers a profile of frequent visitors, it disregards information that is valuable to interpret the results obtained, so as to evaluate each experience. In certain empirical works variables such as age, ethnic group, education or occupation have proved significant to overall satisfaction (Brida, Monterubbianesi & Zapata-Aguirre, 2013; Sheng & Chen, 2012).

On the other hand, environmental variables, such as lighting, ambient temperature, relative humidity and air velocity have a decisive positive or negative effect on the museum experience (Pérez, 2000; Olson & Peter, 2006; Góes Ferreira Lima Verde et al., 2010;

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[2] Editorial translation from the original in Spanish. All subsequent quotes in English, where the source is originally in Spanish, are also editorial translations.

Desvallées & Mairesse, 2010; Falk & Dierking, 2016). Their research on visitors is important because many of them are major factors in the deterioration of exhibited objects (American Society of Heating, Refrigerating and Air-Conditioning Engineers [ASHRAE], 2011; Commission internationale de l'éclairage [CIE], 2004; Pavlogeorgatos, 2003; Thomson, 1986), they also affect the visitor's experience in both comfort and perception of the museal space.

The overall experience in museums takes shape based on an interaction between "the internal"—or what the visitor brings to the visit (previous experiences, interests, expectations, motivations)—with "the external" —or services offered, both tangible (e.g. the exhibition) or intangible (e.g. the educational component or even the values transmitted)— (Packer & Ballantyne, 2016; De Rojas & Camarero, 2008). Satisfaction is a response to that phenomenon, or interpretation of the situation of the visit (Forrest, 2013; Góes Ferreira Lima Verde et al., 2010).

Hence, the study of the formation of satisfaction includes a set of preexisting variables which the visitors themselves bring to the visit and which will affect how they relate to the experience the museum offers, and another set of variables, born of the visitors' perception as a result of their interaction with the exhibition and its components, which takes shape during the visit.

A MODEL ON THE FORMATION OF MUSEUM SATISFACTION

In most cases, the approach of studies on museum satisfaction presents a fragmented analysis, focused on the relation between satisfaction and demographic, psychological or spatial variables, which indicates the need to unify existing knowledge on satisfaction in those environments, and to propose new and more integrated theoretical models.

This work demonstrates the application of a model of satisfaction developed with the aim of studying the visitor's own variables, which are brought to the museum, and how those particular perceptions of the experience offered by the museum influence overall satisfaction with the visit.

The model comprises a confirmatory section, that is to say, with variables empirically validated previously by other studies on the formation of museum satisfaction (De Rojas & Camarero, 2008; Bigné & Andreu, 2004), and a proposed exploratory section, which offers variables and relations not covered in previous bibliography. The overall model was validated in a peer-reviewed and approved doctoral thesis (Bazán, 2020).

The confirmatory section includes affective and cognitive psychological variables: the affective group includes *mood prior to visit* (MPV) (De Rojas & Camarero, 2008; Bagozzi et al*.,* 1999) and emotions (De Rojas & Camarero, 2008; Bigné & Andreu, 2004; Bagozzi et al*.,* 1999), the latter represented through the variables *pleasure* (PLE) and *arousal* (ARL), in accordance with the model of formation of emotions proposed by Russell & Pratt (1980), widely used in environmental psychology (Coppin & Sander, 2012). The pleasure variable indicates to what degree a person feels good, happy or content in specific situations, while arousal indicates the level to which a person feels stimulated or active (De Rojas & Camarero, 2008).

The cognitive variables group includes *visitor's expectations* (EXP) (Sheng & Chen, 2012; De Rojas & Camarero, 2008; Higgs, Polonsky & Hollick, 2005), *perceived quality* (PQ) (De Rojas & Camarero, 2008) and *disconfirmation* (DIS) (De Rojas & Camarero, 2008; Bigné & Andreu, 2004), the latter defined as the difference between what users expect of a product or service and perception after use, which can be positive, neutral or negative, as noted above (McMullan & O'Neill, 2010; Olson & Peter, 2006).

The exploratory section is composed of *mood following the visit* (MFV) (De Rojas & Camarero, 2008; Bagozzi et al*.,* 1999) and four environmental variables: *temperature perception* (TPER), *satisfaction with temperature* (SATT) *lighting perception* (LPER) and *satisfaction with lighting* (SATL). The inclusion of MFV is due to certain authors affirming that mood can be caused or modified by secondary emotions, changes to the environment or general ambient conditions, among others (Bagozzi et al*.,* 1999). This work seeks to empirically prove possible mood changes between arrival at the museum and completing the visit. Regarding environmental variables, while the framework for the investigation of which this work forms part included more variables on environmental conditions, four will be covered herein: lighting and temperature perceptions, defined as the degree of lighting or temperature perceived by the visitor, and satisfaction with said lighting and temperature, or how pleased the visitors were with the levels of lighting or temperature perceived in the museum (Bazán et al., 2018).

The model is complemented by sociodemographic and visit profile variables, along with a group of independent variables mostly related to museum fatigue (Bitgood, 2009a, 2009b; Jeong & Lee, 2006; Davey, 2005). No hypothesis is proposed to relate this latter group to the rest of the variables, but their relation to overall satisfaction is analyzed.

Figure 1 presents the confirmatory and exploratory variables involved, as well as their relations. The group of independent variables related to museum fatigue are also included.
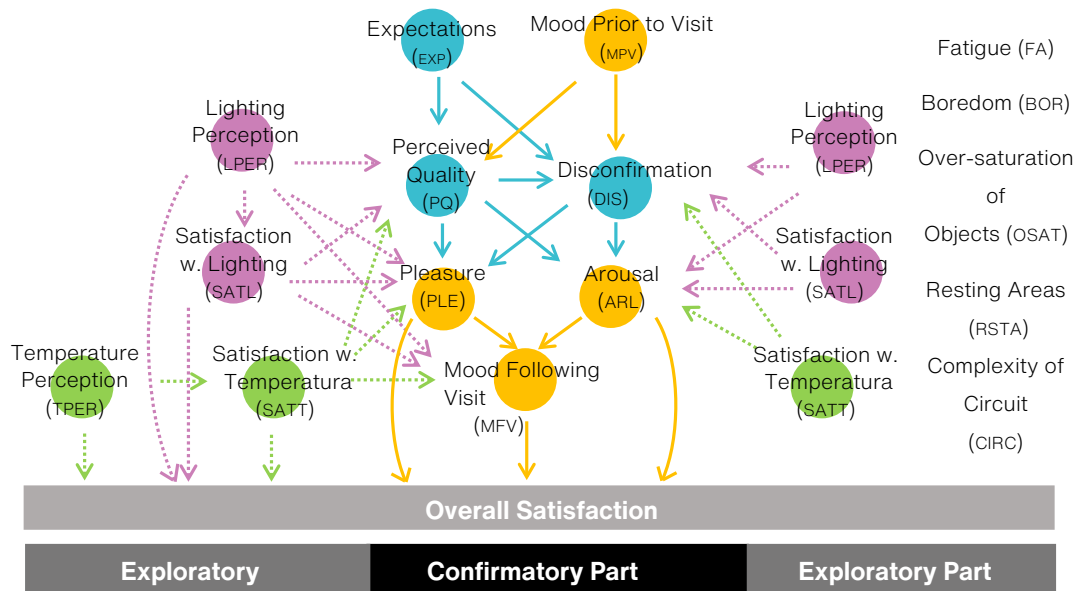

FIGURE 1. Parts of proposed model (Diagram: Bazán, & Ajmat, 2021).

METHODOLOGY

The instrument for measurement

The proposed theoretical model was adapted to a questionnaire designed to be applied in visitor studies.

It included six information sections: *1)* sociodemographic data: age, occupation, level of education, place of origin; *2)* motivation and visit profile: reasons for visiting museum, first visit or not, whether visits museums frequently, whether visit was accompanied and in what way (individual, in a group, with family, with partner), whether it was morning or afternoon (shift) and whether it formed part of guided tour in cases the museum offers this mode; *3)* cognitive psychological considerations: expectations, disconfirmation and perceived quality; *4)* affective psychological considerations: mood before and after visit, boredom, pleasure and arousal; *5)* physical or environmental considerations: light and temperature perception, existence of adequate resting areas, complexity of circulation, fatigue following visit, object saturation; and *6)* satisfaction with visit.

The questionnaire was designed based on relevant bibliography on psychology and environmental psychology, museology and visitor studies, tourism and marketing, as well as environmen-

tal conditions in museums, among others (Russell, 1980; Russell & Pratt, 1980; Oliver et al., 1997; Pérez, 2000; Bigné & Andreu, 2004; Higgs et al., 2005; Jeong & Lee, 2006; De Rojas & Camarero, 2008; Ajmat, Sandoval, Arana, O'Donell, Gor & Alonso, 2011; Dodd et al., 2012; Pattini, Rodríguez, Monteoliva & Garretón, 2012; Coppin & Sander, 2012; Falk & Dierking, 2016). One of its main features is the independent measurement of variables the visitor brings to the museum and those that take shape during the visit. This was carried out in two phases: before and after the visit (Figure 2). Data was collected in the same way in each case: the same person responded to the two parts of the questionnaire. The visitors were approached before they entered the first room; if they wished to participate, they answered the first part of the questionnaire, did their circuit and then returned to answer the second part.
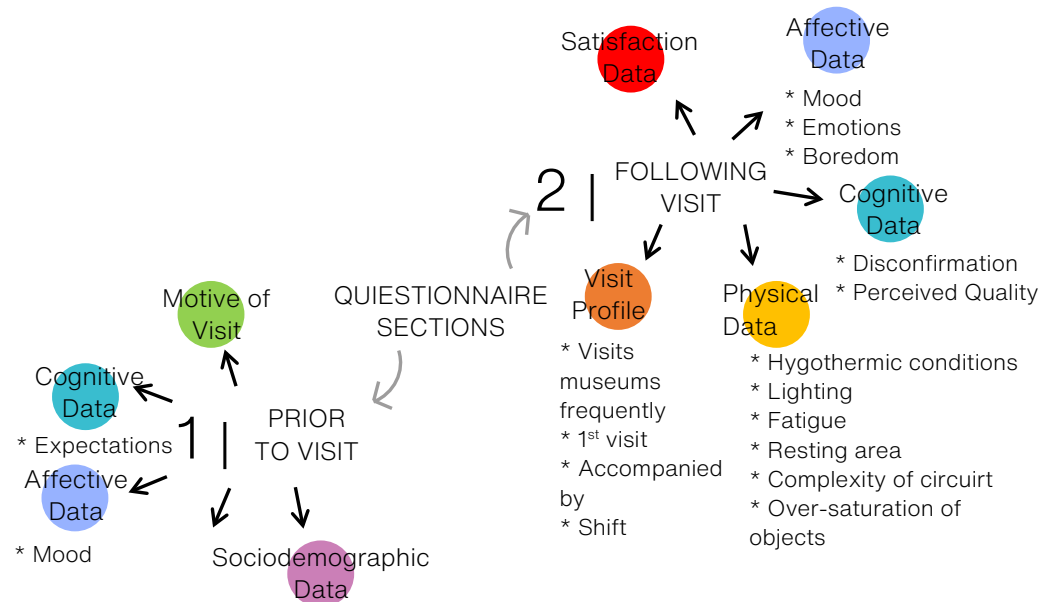

FIGURE 2. Questionnaire structure and blocks of information included (Diagram: Bazán, & Ajmat; source: Bazán et al., 2018).

Another characteristic was its highly structured style, composed of closed questions with a Likert-style response scale of five points, dichotomous selection or semantic differential. A reliability analysis was carried out —the Cronbach alfa value[3] of 0.835 reflects solid internal consistency in questionnaire responses.

[3] Cronbach's Alpha is a coefficient used to measure the reliability of a measurement scale, namely, the ability to reproduce the results in consecutive applications. The closer its value is to 1, greater will be the reliability of the scale, with Alpha values greater than 0.7 or 0.8 being, by general convention, acceptable, depending on the source.

Psychological and satisfaction variables were measured through more than one question in each case, creating scales that were then transformed into a single average value. Said scales were adopted from relevant bibliography, such as: satisfaction (Oliver, 1997), De Rojas & Camarero (2008); pleasure and arousal: Russell & Pratt (1980); mood prior to visit, expectations, perceived quality and disconfirmation: De Rojas & Camarero (2008).[4] Equally, mood prior to and following visit were modified and adapted based on a proposal by De Rojas & Camarero (2008), while the remaining variables were measured with a single question, drafted in the frame of this work.

The scale of overall satisfaction, a variable this work seeks to analyze in detail, was composed of five items[5] (Oliver, 1997; De Rojas & Camarero, 2008): *1)* This is one of the best museums I have visited; *2)* I am satisfied with my decision to visit this museum; *3)* I really enjoyed myself in this museum; *4)* I will recommend my friends visit the museum; and *5)* I will speak positively about this museum.

Data processing
The resulting data was analyzed by using two types of statistical analysis in different stages, obtaining different types of information from each.

The first stage was to perform a descriptive type of analysis, which allowed us to generate a diagnosis of the situation on the date the study was held concerning overall satisfaction, along with a sociodemographic characterization of the visitor and profile or circumstances the visit took place in. The medians for all the variables included in the questionnaire were calculated, establishing three cut-off points: –2.5 low/unsatisfied; 2.51-3.5 medium/somewhat satisfied; 3.51-5 high/satisfied.

A subsequent stage saw the data subjected to an inferential statistics[6] type of analysis, which sought deeper understanding of the results obtained in the first stage. Causal relations between the sociodemographic, visit profile, psychological, physical or environmental, and satisfaction variables were analyzed, along with those most relevant in forming it.

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[4] Authors' translation of all the scales, which are originally in English.
[5] Authors' translation of the original in English.
[6] Inferential statistics is a part of statistics which, through induction, helps to determine general properties for a population based on the study of a sample and the degree of reliability of the results obtained.

The museums chosen

The measurements were carried out in four museums in Argentina with different characteristics; in the first two, visitors were approached and invited to participate just before they began their visit, while in the last ones there was a prior call for volunteers to participate as visitors, who were then invited to visit the two museums consecutively.

The first of the four museums, the Museo Histórico Provincial Presidente Nicolás Avellaneda (MHIST), is in San Miguel de Tucumán (Figure 3).

FIGURE 3. Lower level (a), upper level (b) and façade of Museo Histórico Provincial Presidente Nicolás Avellaneda (Planimetry: Bazán, & Ajmat, 2021; photograph: Liliana Natalia Bazán, 2018).

It is located in the former residence of Dr Nicolás Avellaneda, who was the nation's president in the period 1874-1880. It highlights pieces of great heritage value, such as the Ibatín Jug, made of embossed silver, rescued from the first founding of the city of San Miguel de Tucumán (17th century), charcoal portraits by the famous tucumana sculptress, Lola Mora, and an extensive numismatic collection.

Like most museums in Tucumán, this one is poorly frequented, except for the winter holiday period, in the month of July, the time at which the measurements were taken. The number of people surveyed was 62.

The second was the Museo Nacional Estancia Jesuítica de Alta Gracia y Casa del Virrey Liniers (MEJAG), in Alta Gracia, Cordoba Province (Figure 4).
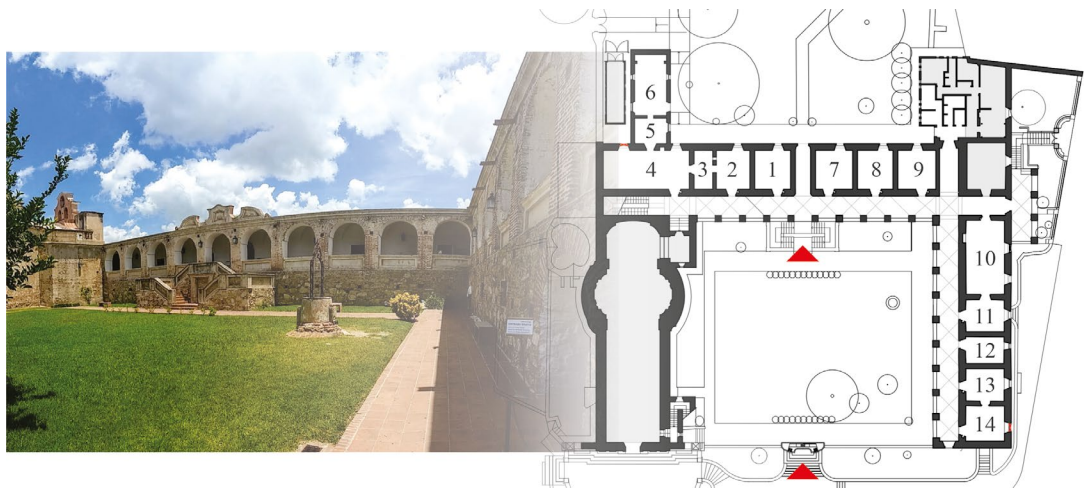
Intervención

FIGURE 4. Floor and façade of Museo Nacional Estancia Jesuítica de Alta Gracia y Casa del Virrey Liniers (Planimetry: redrawn based on plans by architect Antonio Sabatté, courtesy of: Museo Nacional Estancia Jesuítica de Alta Gracia and Casa del Virrey Liniers; photograph: Liliana Natalia Bazán, 2019).

It is located in the former residence of the 17th century Jesuit Estancia. Declared a World Heritage since the year 2000, it shows how the different groups who inhabited the residence over the 17th, 18th and 19th centuries lived: the Jesuits themselves, enslaved African laborers, women and Viceroy Liniers.

It is a highly frequented museum, mainly during the summer holidays, the time when the measurements were taken. It obtained 101 responses.

Finally, the two museums where work was with volunteer visitor, both in the city of San Miguel de Tucumán. Here we sought the chance that the same person visited more than one museum, with different characteristics, allowing direct contrasting of data between measurements obtained for each museum.[7] The total number of volunteers reached 51.

The first was the Museo Casa Histórica de la Independencia (CHI), a building which itself has a symbolic connotation as an icon of national history, being the site of the first Congreso General Constituyente which declared the Independence of the United Provinces of South America on July 9th, 1816. It has been declared a national monument. It has Colonial architecture with a traditional structure of patios (Figure 5).

[7] The objective of the third case study, which worked with a single group of volunteer visitors, was firstly, to obtain data on the same person's appreciation of museums with different characteristics, to contrast them with situations where the visitor samples vary, as occurred with the other two case studies; secondly, to prove the methodology's versatility regarding implementation with different types of visitors, such as volunteers or non volunteers.
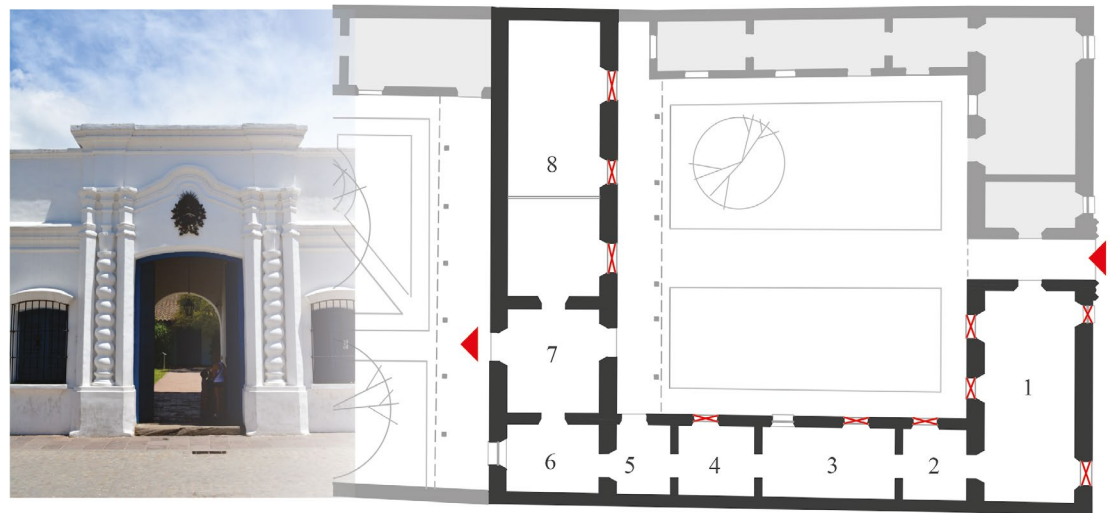
FIGURE 5. Floor and façade of Museo Casa Histórica de la Independencia (Planimetry: Bazán, & Ajmat; photograph: Juan Ajmat, 2018).

The second is the Museo de Arte Sacro de Tucumán (MAS), belonging to the Archdiocese of Tucumán (Figure 6). It has heritage of a religious nature, products of artistic manifestations mostly linked to the practice of religion. It is a very poorly frequented museum with a highly specific theme, hence the audience it attracts is considerably smaller than the others.
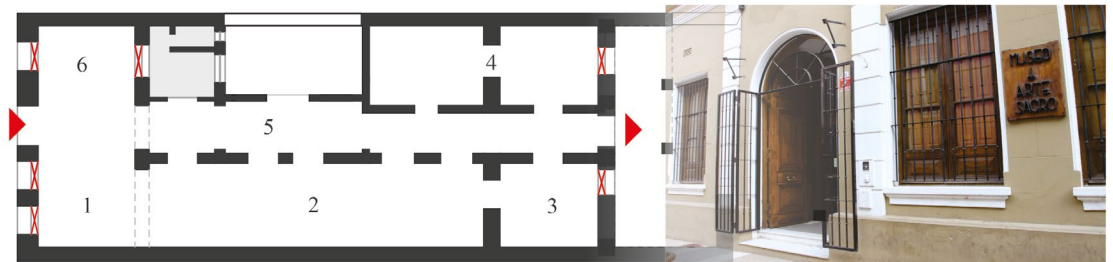

FIGURE 6. Floor and façade of Museo de Arte Sacro de Tucumán (Planimetry: Bazán, & Ajmat, 2021; photograph: Juan Ajmat, 2018).

RESULTS

Descriptive

The sample of visitors to MHIST comprised 20% university students, 33% teachers (mostly of history), 24% of other professionals, 16% employees and 7% retired. Among them, 7% were aged 15-20; 27% aged 21-30; 27% aged 31-40; 10%, aged 41-50 and 29% over 51 years old. The average age was 36. Among them, 79% informed they visit museums frequently, with the most visited type being History museums: 94% reported it was the first time

they visited it. As for motive of visit, the answers were classified in two types: "interest" that included responses such as attracted to history, because it seemed interesting, professional interest, among others, and the second, "tourism" with responses such as on a trip, due to holidays, because of touristic reference, because we are passing through the place, etc. "Interest" was the response given by 62% while 38% said "tourism".

In MEJAG the sample was composed of 9% university students, 30% teachers (mostly of history), 29% of other professionals, 30% employees and 2% retired. Among them, 5% were aged 18-20; 20% aged 21-30; 22% aged 31-40; 31%, aged 41-50 and 22% over 51 years old. The average age was 39. Almost two thirds, 57% informed they visit museums frequently, with the most visited type again being a History museum: 78% reported it was the first time they visited the museum. Regarding motive of visit, the same categories were used as for the first museum, 59% responded they went because of "interest" and 41% for "tourism". Finally, this museum offered guided tours: 27% used this kind of visit.

The group of volunteers (CHI and MAS) was composed of 70% university students and 30% professionals. Among them, 14% were aged 18-20; 66% aged 21-30; 16% aged 31-40; 31%, aged 41-50 and 4% over 51 years old. The average age was 26. In the group, 65% informed they visit museums frequently —with the most visited type being the art museum—, 26% visit history museums (CHI) and only 8% religious ones (MAS). Among them, 88% had already visited CHI while only 39% had visited MAS. Being volunteers, the reasons for their visit were not questioned.

The highest degree of satisfaction for all the components of overall satisfaction were generally seen in MEJAG, followed by MHIST, then MAS, and finally CHI, with the lowest levels. The level of overall satisfaction in MEJAG and MHIST was high, while CHI and MAS presented a similar medium satisfaction (Figure 7).

Inferential

Proving the general functioning of the model to explain satisfaction

Multiple regressions[8] were performed, with overall satisfaction as the dependent variable, aiming to determine whether the variables

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[8] In statistics, multiple regressions permit the study of possible relations between a set of explicative variables and a variable supposed to depend on these

Variables	MHIST		MEJAG		CHI		MAS	
Mood Prior to Visit	3.95	Positive	4.04	Positive	3.76	Positive	3.47	Neutrall
Mood Following Visit	3.87	Positive	4.06	Positive	3.53	Positive	3.7	Positive
Pleasure	4.1	High	4.26	High	3.57	High	3.95	High
Activation	2.58	Medium	2.58	Medium	2.39	Low	2.18	Low
Expectations	3.9	Highs	3.78	Highs	3.56	Highs	3.29	Medium
Perceived Quality	3.8	High	4.19	High	2.99	Medium	3.18	Medium
Disconfirmation	3.8	Positive	4.30	High	3.44	Neutral	3.88	Positive
Lighting Perception	3.13	Medium	3.88	High	2.68	Medium-Low	3.56	High
Satisfaction with Lighting	3.49	Medium-High	3.93	High	2.9	Medium	3.8	High
Temperature Perception	2.60	Medium	3.13	Medium	2.99	Medium	2.76	Medium
Satisfaction with Temperature	3.77	High	3.94	High	3.58	High	3.94	High
Fatigue	1.34	Low	1.55	Low	1.53	Low	1.65	Low
Over-saturation of Objects	1.53	Low	1.70	Low	1.87	Low	2.22	Low
Boredom	1.36	Low	1.29	Low	2.05	Low	1.89	Low
Resting Areas	3.29	Medium	3.85	High	2.79	Medium	3.56	High
Complexity of Circuit	1.00	Low	1.46	Low	1.49	Low	1.77	Low
overall satisfaction	3.74	High	4.17	High	3.18	Medium	3.15	Medium

FIGURE 7. Medians of psychological variables and satisfaction for the four museums analysed (Table: Bazán, & Ajmat, 2021).

included in the model's two proposed parts, or phases —confirmatory and exploratory (Figure 1)— provide an explanation for the levels of satisfaction identified. Its relevance level was defined (p)[9] as well as the goodness of fit (R^2),[10] finding that the model adjusts

[9] The value *p*, or level of significance, is an indicator which helps determine if a result is statistically significant, meaning, how unlikely is it this was owed to chance. The lower the *p* value, the more significant the result, generally, and in this case, values of 0.05 or under (5% probability the results were formed randomly).
[10] The *R square* coefficient is the proportion between total variance that can be explained by regression. In other words, it describes how well a model adjusts to the

correctly to all cases. This allows us to say that the variables included therein, whether in the confirmatory or exploratory stages, correctly explain the level of satisfaction obtained (Figure 8). It was observed in the MAS case that the inclusion of the exploratory part significantly increased the model's adjustment, rising from 0.741 to 0.987, meaning we can state that the environmental and physical variables played an important role in overall satisfaction in this museum.

	CHI		MAS		MHIST		MEJAG	
	R²	Sig. (p)	R²	Sig. (p)	R²	Sig. (p)	R²	Sig. (p)
Confirmatory	0.984	<0,0001	0.741	<0.0001	0.990	<0.0001	0.993	<0.0001
Confirmatory + Exploratory	0.990	<0.0001	0.987	<0.0001	0.991	<0.0001	0.993	<0.0001

FIGURE 8. Adjustment (R^2) and significances (p) in each part of the theoretical model (Table: Bazán, & Ajmat, 2021).

Variables of the most influential satisfaction model in each museum

Once again though multiple regressions, the most influential variable observed in overall satisfaction was perceived quality for MEJAG (p = <0.0001), MHIST (p = <0.0001) and MAS (p = 0.002).

In the case of MHIST, the most influential variable was mood following visit (p = 0.007). Meanwhile, in MAS expectations (p = 0.002) and mood prior to visit (p = 0.025) were also significant. This data from MAS is important to understand the results observed in that museum, where visitors' high values on many variables result in a medium level of satisfaction, comparable to CHI's where the values of the remaining variables were often lower: in MAS expectations were medium and mood prior to visit neutral; both variables influence the others directly or indirectly (Figure 7).

In contrast, for CHI the most significant variables were pleasure (p = 0.001) followed by disconfirmation (p = 0.003).

variable it aims to explain, in this case, overall satisfaction. The closer its value is to 1, the higher the model's adjustment.

***Influence of sociodemographic and visit
profile variables on satisfaction***

A variance analysis one way (anova) of a factor[11] was performed with satisfaction as dependent variable.

The only variable that presented a significant relation with satisfaction in MEJAG was the guided tour. Visitors who followed it presented higher overall satisfaction ($F = 5.09$, $p = 0.02$) as well as on two of the five items of its scale: satisfaction with decision to visit the museum ($F = 4.69$, $p = 0.03$), and of their intention of speaking positively of it in the future ($F = 6.47$, $p = 0.01$).

In MHIST the significant variables were occupation and age. For the former ($F = 2.53$, $p = 0.05$), pensioners and teachers presented medium satisfaction, higher average satisfaction than the rest. As for age ($F = 5.10$, $p = 0.02$), there was a greater degree of satisfaction among those over 41 years of age and furthermore, the satisfaction items were influenced by the decision to visit the museum ($F = 5.03$, $p = 0.02$), the possibility of recommending it ($F = 7.14$, $p = 0.009$) and of speaking positively about it ($F = 0.19$, $p = 0.005$).

In CHI occupation ($F = 5.25$, $p = 0.008$), age ($F = 2.07$, $p = 0.03$) and level of education ($F = 4.59$, $p = 0.01$) influenced satisfaction. For occupation, professionals had a much higher satisfaction than students. As for age, it was found that, as in MHIST, satisfaction increased among the over 41. For level of education, people with a university or postgraduate degree presented higher satisfaction than students with lower academic degree.

Finally, in MAS none of the sociodemographic or visit profile variables influenced the satisfaction of the volunteer visitors.

***Influence of sociodemographic and visit profile
variables on the model's remaining variables***

As with overall satisfaction, we studied the relation and influence of these variables on the components of satisfaction proposed in the theoretical model, through one way anova of a factor. Based on the results obtained, we observed that:

· Occupation had a great influence on the variables in the MHIST model.
· Mood prior to visit and expectations were influenced by many of the sociodemographic and visit profile variables in all mu-

[11] A statistical technique to determine whether two variables, one explicative and one dependent, are related, by comparing whether the dependent variable is different, or not, in the explicative variable's categories or groups.

seums except for CHI. It is worth noting that both functioned as independent variables in the theoretical model and influenced the others.

- Sociodemographic variables had scant or no influence on the most influential variables in forming satisfaction: perceived quality in the cases of MEJAG, MHIST and MAS, pleasure in the case of CHI.

- Sociodemographic variables had no influence on overall satisfaction in MAS, nor on its component variables in general.

- Visit profile variables did not have a significant influence in CHI.

- In MEJAG and MAS, visit profile variables had a greater influence than the model's sociodemographic variables.

- In MEJAG, MHIST and MAS, the sociodemographic and visit profile variables had greater influence on mood prior to visit than on mood following visit. This could indicate that mood following the visit was more influenced by factors of the visit itself, as suggested by certain authors (De Rojas & Camarero, 2008; Bagozzi et al., 1999).

- In all the museums except MAS, attention during the visit, a component on the activation scale, was linked to age. Visitors reported being more attentive over 41 years of age. Furthermore, in MHIST they were more alert and stimulated, two other items on this scale.

- In MHIST and CHI, the emotion of pleasure was linked to age. In both, the average for that variable increased in people over 41. In MEJAG age also affected another two items on the pleasure scale; visitors over 41 were more cheerful and content.

- In both MHIST and MAS, mood prior to visit was more positive among first time visitors and less positive among those who had already visited it.

- Expectations were greater among those visiting the MEJAG, MHIST and MAS museums for the first time.

Figures 9, 10, 11 and 12 show graphs of the relations observed in each of the four museums.

DISCUSSION OF RESULTS

The theoretical model proposed in this work was able to confirm all the case studies in its confirmatory and exploratory phases: it serves to explain the level of overall satisfaction reported by visitors both with or without exploratory variables. This means the proposed phases can be used progressively, according to the objec-

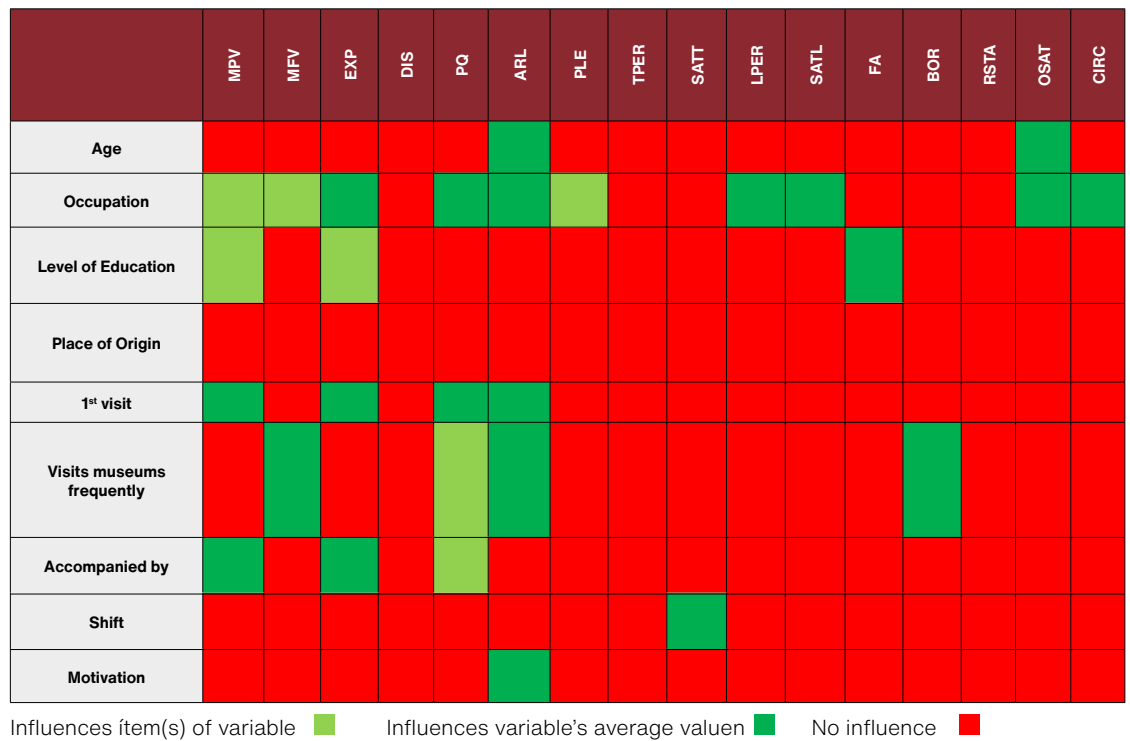ENERO-JUNIO 2021
JANUARY-JUNE 2021

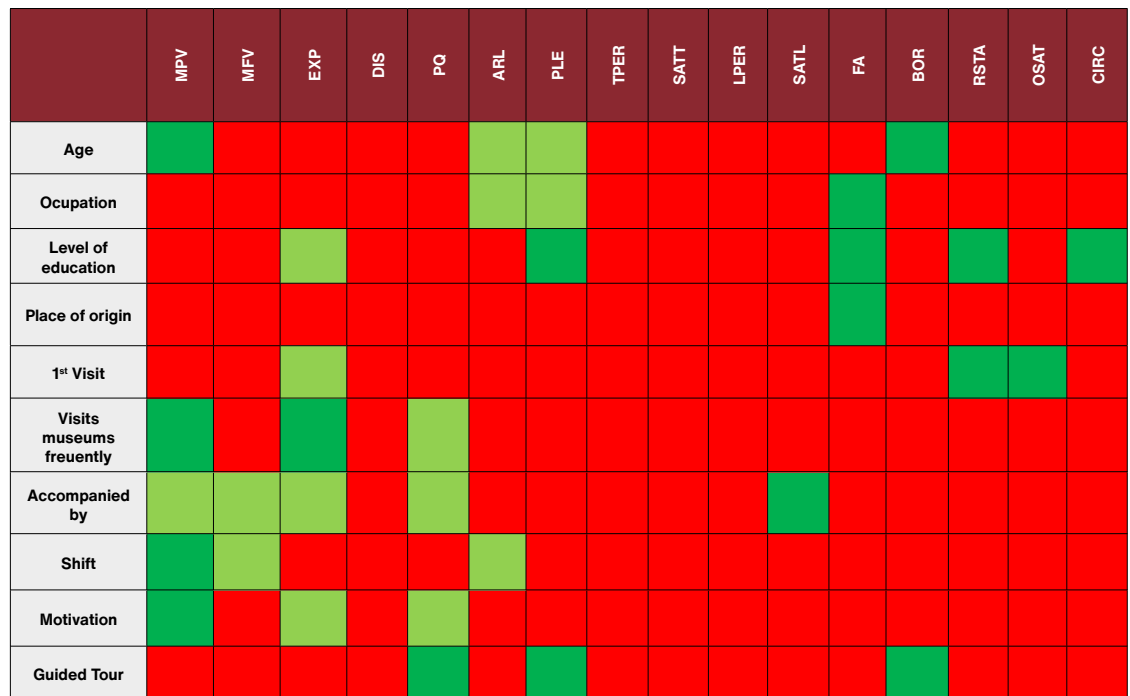FIGURE 9. Influence of demographic variables and profile of visit in MHIST model (Table: Bazán, & Ajmat, 2021).

FIGURE 10. Influence of demographic variables and profile of visit in MEJAG model (Table: Bazán, & Ajmat, 2021).

	MPV	MFV	EXP	DIS	PQ	ARL	PLE	TPER	SATT	LPER	SATL	FA	BOR	RSTA	OSAT	CIRC
Age																
Ocupation																
Level of education																
Place of origin																
1st Visit																
Visits museums freuently																
Accompanied by																
Shift																

FIGURE 11. Influence of demographic variables and profile of visit in CHI model (Table: Bazán, & Ajmat, 2021).

	MPV	MFV	EXP	DIS	PQ	ARL	PLE	TPER	SATT	LPER	SATL	FA	BOR	RSTA	OSAT	CIRC
Age																
Ocupation																
Level of education																
Place of origin																
1st Visit																
Visits museums freuently																
Accompanied by																
Shift																

FIGURE 12. Influence of demographic variables and profile of visit in MAS model (Table: Bazán, & Ajmat, 2021).

tives. If the aim focusses simply on the level of overall satisfaction and its psychological components, only the confirmatory questionnaire need be used, while if you seek to delve into the analysis of physical and environmental components you also include the exploratory section in the envisaged visitor study, which could be of use for the institution if, for example, controls or changes in the environmental conditions have occurred, associated with the preservation or conservation of the exhibited objects, among others.

Through in-depth analysis of sociodemographic and visit profile variables, certain common patterns were identified among all the

case studies, such as the apparent influence of age on satisfaction and many of its component variables reported by visitors. Here there seems to be a marked difference between two age groups: over and under 40. This could be linked to generational differences in visitors' needs for each group, a widely discussed topic nowadays in visitor studies and visitor characterization.

The greatest level of overall satisfaction was registered in MEJAG, followed by MHIST, and finally CHI and MAS, with a similar average level. The psychological variables that accompany those results reflect a similar behavior for the set of museums: the highest ratings of each psychological variable (cognitive and affective) were usually given by visitors in MEJAG, followed by MHIST, then MAS and finally CHI.

The marked difference between the two museums with the higher assessment levels by visitors (MEJAG and MHIST) and the two lower (CHI y MAS) regarding both satisfaction and psychological variables could be due to:

· The fact that the motives analysis revealed that over half the visitors to MHIST y MEJAG went because of "interest" and not just "tourism". Added to this, the majority reported that they go to museums regularly, mainly of a historical nature, a different situation to the volunteers, who were unable to choose which museum to visit; when consulted which they frequented, the majority indicated a preference for art museums.

· Various studies assert that mood can affect a visitor or consumer's judgement (Bagozzi et al., 1999): this was proved by multiple regressions, it influenced overall satisfaction in the museums analyzed. MEJAG and MHIST had higher values for mood than the other museums, both prior to and following the visit. It is also noteworthy that MEJAG was the only museum where mood did not go down between start and end of visit, which could be another cause for the greater degree of satisfaction in it, thus indicating that perhaps the experience offered to the visitor affects their satisfaction more favorably than in the other cases.

· The average age of visitors was 39 and 36 respectively in MEJAG and MHIST, while lower (26) for the volunteers in CHI and MAS. The difference in levels of overall satisfaction between the two groups of museums could be linked to the previously mentioned generational variations detected between people under and over approximately 40 years of age.

· The visitors who participated in a guided tour at MEJAG reported higher levels of overall satisfaction tan those who visited on

their own. Multiple regressions proved that this difference was statistically significant, therefore, the guided tour influenced visitors' satisfaction levels.

Perceived quality was the most influential variable in overall satisfaction in three cases. The exception being CHI, where this variable was outdone by pleasure and, in second place, disconfirmation. The CHI case could be linked to pleasure being an emotional variable, and with the museum's symbolic nature, which could have shaped the cognitive evaluation of the experience. As for disconfirmation, 88% of the volunteers had already visited the museum, unlike the other cases, which could mean that disconfirmation regarding a prior visit or knowledge shaped the quality perceived.

CONCLUSIONS

Developing and validating tools and methodologies such as those presented herein, which enable the degree of satisfaction in a specific context to be measured in an integral manner, is primed as a substantial contribution to decision-making in museum management. Its use will enhance the scope of evaluations by measuring the extent to which variables participate in the formation of satisfaction, either those specific to the visitor profile or those in which the museum can intervene.

Albeit the model's structure and the variables included are a key part of the evaluation, what allowed us to reach the stated results was the ability to differentiate between the cognitive and emotional state of the visitors before and after the visit, along with a deeper analysis of the relation between those states and their visit profile, both factors characteristic of the methodology developed.

Common patterns found in the case studies analyzed provide sufficient evidence to state that sociodemographic variables seem to have a significant influence on the visitors' cognitive and emotional state (psychological variables) until they arrive at the museum, but that influence seems to wane once they begin their visit and up until they complete it. While this second stage develops, the visitors may find themselves in a different mental state, with cognitive and affective conditions determined by their first mental state as well as their perception or interpretation of the services offered by the museum. Their overall satisfaction will eventually be composed of that second state of mind, which will also be influenced by physical variables, i.e. their perception of the environment.

Intervención

The results obtained in three out of four cases analyzed suggest a prevalence of cognitive psychological variables in the formation of overall satisfaction, such as perceived quality, which is also in line with results found by other authors (De Rojas & Camarero, 2008). However, this does not mean affective variables have no influence on satisfaction. In the case of museums with a significant historical meaning for the visiting public, such as CHI, emotions can play a leading role in the formation of satisfaction, perhaps modifying the visitors' perception of the museum and thus giving a more flexible assessment of their satisfaction compared to a situation with a lower affective load.

This change in perception and resulting evaluation of the visit and satisfaction can also be observed in terms of visitor motivations, age or specific visit characteristics, such as whether or not they took a guided tour. Hence, this change of perception can occur due to characteristics ascribable to the visitor's profile or to others, such as the service or experience offered by the museum itself.

While the present work did not delve into the study of motivations, it did find evidence of a profile relating to a more specific or in-depth interest in the content of the exhibition in question and another of a more recreational approach. In terms of age, the generational differences observed when evaluating the experience by the visitor demonstrates the need for deeper research to identify the different needs of each age group concerning satisfaction and enjoyment of the experience.

Distinguishing these profiles would be a tool for museum institutions to plan, manage and design their exhibitions, and to determine the services to be offered, such as guided tours. Therefore, it also has implications regarding museums' need to garner deeper understanding of the profiles of their different publics and how this affects their perceptions and assessments of the specific experience a museum offers.

The methodology presented does not lack limitations. Firstly, it requires a considerable investment of time on the part of the researcher, since a significant amount is dedicated to data collection. Equally, the study requires a lot of time from the visitor to answer a two-part questionnaire. Secondly, future implementations wound be well-advised to complement the results obtained by applying the methodology with a detailed analysis of the particular characteristics of each museum regarding the content it presents and the services offered. That would enable contrasting the perceptions reported by the visitors with objective data on the context of their

experience, which would broaden the scope of possibilities to detect common patterns between museums.

Continuous application of this methodology in different case studies will facilitate deeper analysis of convergences and divergences of the variables involved, with a view to generating guidelines for exhibition design and decision-making linked to museum management.

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