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**Museums visitors' heterogeneity and experience processing**

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NOTICE: this is the authors' version of a work that was accepted for publication in International Journal of Hospitality Management. Changes resulting from the publishing process, such as peer review, editing, corrections, structural formatting, and other quality control mechanisms may not be reflected in this document. Changes may have been made to this work since it was submitted for publication. A definitive version was subsequently published in International Journal of Hospitality Management, 78, pp. 131-141, 2019.

The final definitive version in International Journal of Hospitality Management is available online at:

<https://dx.doi.org/10.1016/j.ijhm.2018.12.004>

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# MUSEUM VISITORS' HETEROGENEITY AND EXPERIENCE PROCESSING

**Abstract:** This research examines the relationships between affective and cognitive antecedents and consequences of satisfaction under a market heterogeneity approach. It includes co-creation of preparatory activities. The sample consisted of 276 museum visitors in London. Two analysis have been conducted: structural equation model and latent class path analysis. The paper contributes to the development of a theoretical framework for further understanding of service experience in which co-creation plays an important role. Two segments were identified: 1) emotional (with lower degree of co-creation, equally distributed by age and nationality); 2) rational (higher degree of co-creation, younger and domestic visitors). Our research shows significant differences between the two segments regarding variables such as satisfaction, loyalty, service experience, emotion, positive disconfirmation and willingness to pay more.

**Keywords:** *co-creation; service experience; heterogeneity; segmentation; consumer behaviour.*

## 1. INTRODUCTION

Tourist experience is at the heart of tourism. Tourists are temporarily affected by their travel experiences, but this effect diminishes over time until it vanishes altogether (Pizam, 2017). Due to the complexity of the visiting experience, researchers have expended a great deal of effort to understand how tourist experience is formed, how visitors evaluate it and what its main consequences are (Ali, Amin, & Cobanoglu, 2016). Moreover, the impact of service experience on tourists' satisfaction has been gaining particular attention (Ali, Amin and Cobanoglu, 2016; Bigné, Andreu & Gnoth, 2005; Kastenholtz, Carneiro, Marques, & Loureiro, 2018; Ryu & Han, 2011).

An experience happens when services are used to engage customers. This facilitates a memorable event (Pine & Gilmore, 1998). However, experiences should not be considered only as a memorable event that has happened in the past. It is also necessary to consider them as something that can be anticipated in the future and consider the preparatory activities in which tourist visitors can engage before the experience occurs, such as checking websites or downloading apps, just to mention only a few examples (Buhalis & Foerste, 2015). Anticipation of the experience, through co-creation activities, should also be regarded as part of the experience itself (Ramaswamy & Ozcan, 2018). Tourist visitors have, in recent years and because of increasing Internet use, developed a high level of expertise in these activities and, as long ago as the early 1990s, Munt (1994) highlighted the "professionalization" in the consumption of tourism. This process of anticipation of the experience is boosted by the existing and emerging technologies that are offering unexpected opportunities to tourists in order to co-create the visiting experience (Jung & tom Dieck, 2017; Van Doorn et al. 2017).

Co-creation is related to joint creativeness (Sanders & Stappers, 2008) and it is commonly assumed that customers are co-creators of value at all times (Vargo & Lusch, 2008; Leclercq, Hammedi & Poncin, 2016). Co-creation activities have been one of the main research priorities in marketing and tourism research (Cabiddu, Lui, & Piccoli, 2013; Campos et al., 2018; Mathis et al., 2016). However, many relevant questions on value co-creation in tourist experience are still unanswered (Campos et al., 2018; Grisseemann & Stokburger-Sauer, 2012). For example, it is not yet apparent if there are any differences regarding service experience, satisfaction and loyalty among tourists with high value co-creation compared to low or to what extent these groups, based on the level of co-creation, are also related to socio-demographics.

Recent tourism studies on co-creation in service experience (Sørensen & Jensen, 2015) and research on the role of socio-demographics in emotional/rational information processing (Hoyer, MacInnis, & Pieters, 2013) indicate that these elements – value co-creation and socio-demographics – are worth examining to find whether they could facilitate the identification of market segments. This avenue of research may show heterogeneity in the evaluation of service experience and its consequences and might avoid the simplistic consideration of the sample as homogeneous but, instead, requiring segmentation. The assumption of tourist experience as something homogeneous was defined by Cohen who proposed that “different kinds of people may desire different modes of tourist experiences” (1979, p.180). Other researchers have asserted that tourism marketers should not consider travellers as homogeneous (Del Chiappa, Andreu, & Gallarza, 2014; Janga, Morrison, & O’Leary, 2002; Millán, Fanjul, & Moital, 2016). Therefore, it could be argued that, if there is a potential to identify different segments, this would prove in such cases the heterogeneity of the sample.

Previous studies have analysed, in the context of theme parks, the relationships between service experience, emotions, disconfirmation, satisfaction and their consequences (Bigné, Andreu, & Gnoth, 2005), resort hotels (Ali et al., 2016) and restaurants (Ryu & Han, 2011). In the context of full restaurants, Tsaur, Luoh, and Syue (2015) confirmed that positive emotions have a positive influence on behavioural intentions. In a recent study of ethnic restaurants Song & Qu (2017) found that “positive emotions led to an increase in customer satisfaction, and negative emotions led to a decrease in customer satisfaction” (p. 73). However, there are few studies about how these relationships are affected by individual characteristics of tourists and market heterogeneity (Barroso, Martín, & Martín, 2007). This important gap will be addressed in this research.

The overall aim of this research is to investigate how experience is processed by museum visitors, if different segments can be identified and how this affects the different relationship between antecedents and consequences of satisfaction. In particular, this study also aims to study if co-creation of preparatory activities is similar or different for each of the identified segments.

In order to address the aim of this study, four research questions have been proposed: RQ1: What is the influence of emotions and cognitions in the evaluation of service experience and its impact on satisfaction? (H1 to H7); RQ2: How does satisfaction impact on loyalty and willingness to pay more and how is the relationship between these last two variables? (H8-H10); RQ3: How can different segments be identified based on the way visitors process the service experience?; RQ4: In the event that segments can be identified, how can they be described based on variables related to the tourist (age, gender and origin) and their degree of co-creation of preparatory activities?

One research objective is the development and further empirical validation of an explanatory model that helps to understand the complex relationships between service experience, emotions, disconfirmation, satisfaction and its consequences for loyalty and willingness to pay more (Ali et al., 2016; Bigné et al., 2008; Ryu & Han, 2011). A second objective is to try to discover segments of consumers, inquiring into heterogeneity, as well as identifying the variables (value co-creation and socio-demographics) that describe those segments and explore the diverse behaviour of each segment in forming loyalty and the willingness to pay more.

Two different analysis have been conducted: i) structural equation model to answer RQ1 and RQ2 (H1-H10) and (ii) a latent class analysis to answer RQ3 and RQ4. Empirical analysis was conducted assuming the possible heterogeneity of the sample, unlike the general assumption of most previous studies that samples are homogeneous, as this focus may not always reflect

the real nature of tourist behaviours. This possibility has been addressed in this research through a latent class analysis that led to the identification of two segments (one described as rational and the other as emotional) and the subsequent description of them through the combination of two other types of variables: a) socio-demographic (age, gender and place of origin) and b) behavioural (co-creation).

The findings of this research are relevant to managers of tourist destinations and, in particular, of museums. The identification of new segments of visitors that co-create in different ways and that exhibit satisfaction and loyalty dissimilarly could contribute to design targeted strategies with tailored actions.

## **2. LITERATURE REVIEW AND HYPOTHESES**

### ***2.1. Tourism segmentation and visitors' heterogeneity***

Tourism marketers should not always regard tourists as one homogeneous group (Del Chiappa et al., 2014; Janga et al., 2002). Marketing segmentation is the process that aims at identifying and partitioning the market into homogeneous groups with similar characteristics, and this allows the design of products and services to add value and to satisfy the needs of different groups (Wedel & Kamakura, 2000). Some studies in tourism have used *a priori* segmentation (Moital, Dias, & Machado, 2013) and others *a posteriori* segmentation (Dolnicar & Lee, 2008). According to DeSarbo, Kamakura, and Wedel (2006), in *a priori* segmentation the researcher knows the market segments in advance because the total sample size is divided or classified according to one or several known variables. Next, the researcher conducts a separate analysis per market segment. However, when the underlying market segments are unknown, the researcher may be uncovering the customer heterogeneity through *a posteriori* segmentation or data-driven segmentation.

Examples of *a priori* segmentation that have been used are age and nationality. According to Hoyer, MacInnis, and Pieters (2013), age is related to information processing and decision-making. Age accounts for differences in physical resources and processing ability. Old age has been associated with a decline in certain cognitive skills and, thus, reduced ability to process information. For instance, older consumers take more time to process nutrition information and make decisions that are less accurate than those of younger consumers. Regarding cruiser trips experiences, Hosany and Witham (2010) find that age and gender also influence the evaluation of the service experience. Specifically, the younger group rated the cruise more entertaining and indulged in environments more than the older groups. Prayag and Ryan (2011) find that nationality seems to have a stronger influence on affective images, place of origin having a significant influence on the way visitors interpret the destination environment regarding affective and cognitive elements.

Tourism is an experience-intensive sector. Customers pursue pleasurable experiences above everything else. Previous research suggests that co-creation behaviour is not the same for all consumers (Cossío, Revilla, & Vega, 2013). Previous studies (Diz-Comesaña & Rodríguez-López 2011) suggest that consumers are not actively co-creative, but that it may not be possible to supply the service without their active participation.

The role of value co-creation as ground for a *posteriori* segmentation has not yet been studied in tourism research. According to Grissemann and Stokburger-Sauer (2012), the degree of co-creation further positively affects customer satisfaction with the service company, customer loyalty and service expenditures.

Consequently, this leads us to base our third and fourth questions on the study of the heterogeneity of visitors, mainly based on their degree of value co-creation and on socio-demographic variables.

## **2.2. Research hypotheses**

### *2.2.1. Effects of service experience on emotions and disconfirmation*

In order to answer the first research question related to the influence of emotions and cognitions in the evaluation of service experience and its impact on satisfaction, we have conducted the revision of the relevant literature and supported the subsequent hypothesis (H1-H7).

Service experience, introduced by Pine and Gilmore (1998) in their conceptualisation of 'experience economy', is a fundamental concept in service-dominant logic, and research on service experience is growing rapidly (Ali, Amin & Cobanoglu, 2016; Helkkula, 2011; Olsson et al., 2012; Vargo & Lusch, 2008). Previous research states that various components of service experience including physical environments, staff, and other customers can trigger an emotional response from the customer (Ali, Amin & Cobanoglu, 2016).

Based on the stimulus–organism–response (S–O–R) model (Mehrabian & Russell, 1974), in any environment, including that of a museum, visitors will produce an emotional state in an individual that can be characterised in terms of the three PAD dimensions (Ali, Hussain, & Ragavan, 2014; Forrest, 2013; Ladhari, 2009; Pareigis et al., 2011). Pleasure–displeasure refers to the degree to which the person feels good, joyful, happy, or satisfied in the situation. Arousal–non-arousal refers to the degree to which a person feels excited, stimulated, alert or active in the situation. Dominance–submissiveness refers to the extent to which the individual feels in control of, or free to act in, the situation. Donovan and Rossiter (1982) applied an abbreviated version of the PAD scale to retailing research. They found that pleasure–arousal dimensions were adequate to represent an individual's emotional responses to a wide range of environments and shopping behaviours were not related to measures of dominance. There has been a considerable consensus in respect to this bi-dimensional character of emotions (pleasure–arousal) in marketing research (Bigné et al., 2005). In this study, we consider emotions as a unidimensional construct that integrates both pleasure and arousal dimensions.

In the museum service experience context, museums are regarded as “experience-centred places that offer both emotional and cognitive stimuli and as places of service experience consumption” (Chan, 2009, p.177). Visitor experiences in a museum include the subjective mental state that participants feel during a service encounter (Otto & Ritchie, 1996), which may include feelings of fun and enjoyment, escape from routine, sharing valuable time with family or friends or, learning (Su & Teng, 2018). Packer (2008) reiterated that it is the experience, not the result of learning that matters to museums. Visitor experiences are affected, but not limited to the configuration of a museum, from its entrance/hall, exhibitions, service areas (rest rooms, gift shop and restaurant), to the museum's macro-architecture. Objects and interpretation materials (labels, media and pamphlets) are also part of the physical context (Falk & Dierking, 2013; Kirchberg & Tröndle, 2012).

Museums are perceived as an experiential consumption place for leisure/recreation activities, cultural/heritage educational and learning experiences, space and social interaction (Chan, 2009; Rowley, 1999). According to He, Wu, & Li (2018), a key construct that captures the success or failure of the entire museum experience is perceived experiential value. According to Chan (2009), museum service experience consumption involves “value imaginative, affective and emotional perspectives” (p. 176). The consumption of this experience can be seen as providing ‘experiential’ products that facilitate feelings, emotions and knowledge for visitors and, therefore, museum visits can be regarded as a “journey of heritage experience” (Chan, 2009).

Marketing scholars have relied on the cognitive theory of emotions to explain consumer behaviour (Bigné, Andreu & Gnoth, 2005; Bagozzi et al., 1999). Consistent with this argument, the cognition–emotion school of thought (Lazarus, 1991) posits the causal role of cognition as a necessary condition in order to elicit emotions. The appraisal theory of emotion (Lazarus, 1991) indicates that cognitive appraisal precedes emotions and is similar to the information processing view of consumer behaviour (Bagozzi et al., 1999). In the context of theme park experiences, Bigné, Andreu & Gnoth (2005) supported the cognitive theory of emotions, and specifically, the appraisal construct of service experience is an antecedent to visitor emotions. As stated by Grace and O’Cass (2004), “service experience contributes substantially to the way in which consumers feel about and evaluate service brands” (p. 458) found evidence of a positive relationship between the customers’ service experience and their emotions. Hosany and Gilbert (2010) and Hosany and Witham (2010) observed a significant impact of service experience on customer emotions in the tourism and cruise holiday context, respectively. These arguments conclude that service experience dimensions, including physical environmental factors and interaction with service employees and other consumers (Grace & O’Cass, 2004; Grove et al., 1998; Walsh et al., 2011), may influence the emotional states of the customers. Accordingly, the following hypothesis is proposed:

*H1: Service experience has a positive impact on emotion*

Not only the service experience may elicit emotional responses (Han & Ryu, 2009; Ryu & Jang, 2007), but it may also induce cognitive or perceptual responses (e.g., service quality, disconfirmation) (Kim & Moon, 2009), influencing people’s evaluations and judgements on the quality of a place or product/service. Disconfirmation refers to a psychological interpretation of an expectation-performance discrepancy (Oliver, 1997). Positive disconfirmation (exceeding expectations) leads to enhanced satisfaction while falling short of prior expectations is likely to result in less favourable evaluations (Bigné, Mattila & Andreu, 2008; Boo & Busser, 2018; Wirtz & Bateson, 1999a). A recent study on the tourists’ hotel event experience (Boo & Busser, 2018) perceived performance. Customers are directly asked to provide their perceptions or evaluations of the comparisons using a “worse than/better than expected” scale. The resulting perceptions are conceptualised as a psychological construct called “subjective disconfirmation”. According to Dong and Siu (2013), a customer's service experience evaluation refers to the individual's impressions about an experience based on their interactions with substantive as well as communicative elements of the servicescape.

Museum visitors’ expectations are usually based on the interactions between tourists and trips, reading brochures in advance, virtual experiences on the Internet or previous tourism and visiting experiences (Sheng & Chen, 2012). Visitors began to evaluate their museum experiences on web-based platforms, and these platforms are now heavily exploited by travellers for trip inspiration and planning (Su & Teng, 2018) affecting visitors’ expectations. Some previous studies revealed that atmospherics may influence customers’ evaluation of service quality as well as their behavioural responses (Wall & Berry, 2007). For example, if customers perceive as pleasant the background music of a restaurant, this environmental cue may positively affect the perceptions of the cognitive response, such as perceived disconfirmation. Hence, it is logical to postulate that the customers’ perceptions of service

experience may influence the disconfirmation of overall consumer experience (Ryu & Han, 2011). Based on the aforementioned discussion, the following hypothesis is proposed:

*H2: Service experience has a positive impact on positive disconfirmation*

### *2.2.2. Effects of disconfirmation on emotions, satisfaction and WPM*

Marketing scholars have mainly relied on the cognitive theory of emotions to explain consumer behaviour (Bagozzi & Moore, 1994; Bagozzi, Wong, & Yi, 1999). In this study, cognitive and affective evaluations are conceptualised as disconfirmation and emotions, respectively. According to prior research, the discrepancy between actual performance and pre-purchase expectations is directly linked to consumer emotions (Menon & Dube, 2000; Oliver, Rust, & Varki, 1997; Wirtz & Bateson, 1999b). Specifically, falling short of expectations (e.g., negative disconfirmation) tends to lead to feelings of displeasure while exceeding expectations (e.g., positive disconfirmation) is related to increased positive emotions. Therefore, the following hypothesis is proposed:

*H3: Positive disconfirmation has a positive impact on emotion*

Oliver (1981) claimed that there was a lack of integrated theory and empirical findings regarding customer satisfaction. He proposed a new definition that basically means an evaluation of the surprise inherent in a product acquisition and/or consumption experience. This evaluation should incorporate both perceptual judgement and also emotional response. The need to understand satisfaction from a more affective perspective has been highlighted (Oliver et al., 1997; Phillips & Baumgartner, 2002; Qiu et al., 2018; Wirtz & Bateson, 1999a). Accordingly, customer satisfaction can be defined as a cognitive-affective state resulting from cognitive evaluations (e.g., disconfirmation), as well as from the emotions that these evaluations evoke. Previous work has empirically confirmed a direct causal relationship between disconfirmation and customer satisfaction (Boo & Busser, 2018; Cadotte, Woodruff, & Jenkins, 1987; Oliver & DeSarbo, 1988; Szymanski & Henard, 2001). Accordingly, this hypothesis is proposed:

Qiu, M., Zhang, J., Zhang, H., & Zheng, C. (2018). Is looking always more important than listening in tourist experience? *Journal of Travel & Tourism Marketing*, 1-13.

*H4: Positive disconfirmation has a positive impact on satisfaction*

While there is significant support for the impact of disconfirmation on satisfaction, research on the effect of disconfirmation on behavioural intentions is limited (Baker & Crompton, 2000; Bigné et al., 2008; Oliver et al., 1997). The relationship between disconfirmation and consumers' willingness to pay more (WPM) for the service is a particularly salient topic for hedonic services such as leisure and tourism services that tend to practise all-inclusive pricing strategies (He, Wu, & Li, 2018). In the literature review, there are contradictory effects of disconfirmation on WPM. Bigné et al. (2008) found that, in the theme park setting, disconfirmation has a positive WPM, but there was a negative effect for the museum, possibly because many people feel they should be free or inexpensive. However, in the context of museum experiences, He, Wu, and Li (2018) demonstrate that augmented reality technology can enhance visitors' experiential value and impact on willingness to pay more. Due to this controversy on previous studies, there is a need for further research on this relationship. We postulate that visitors who positively evaluate their leisure experience (positive disconfirmation) are more willing to pay extra for the service in the future (Baker & Crompton, 2000; Wakefield & Blodgett, 1999; Zeithaml, Berry, & Parasuraman, 1996). Therefore, we suggest that:

*H5: Positive disconfirmation has a positive impact on WPM*

### *2.2.3. Effects of emotions on satisfaction and loyalty*

Emotions are ubiquitous in tourism (Aho, 2001) and play a central role in defining memorable experiences (Tung & Ritchie, 2011; Zeithaml et al., 1996). Emotions are the most relevant component of affect for the travel industry (Mitas et al. 2012). Emotional responses are powerful indicators of satisfaction (del Bosque & San Martín, 2008; Faullant, Matzler & Mooradian, 2011), and behavioural intentions such as loyalty (Bigné et al., 2005; Hosany & Prayag, 2013; Lee et al., 2008).

Studies in marketing (Bagozzi, Gopinath, & Nyer, 1999; Ladhari, 2007; Liljander & Strandvik, 1997; Walsh et al., 2011) and tourism (Bigné et al., 2005; del Bosque & San Martín, 2008; Yuksel & Dagdeviren, 2007) confirm a relationship between emotions and satisfaction. Satisfaction is a key outcome of positive emotional responses such as pleasure, interest and joy (Oliver, 1997). In tourism, positive emotions such as joy (Faullant, Matzler, & Mooradian 2011), happiness, excitement and pleasure (Grappi & Montanari, 2011) have a favourable influence on satisfaction. In a heritage tourism context, Prayag, Hosany, and Odeh (2013) show that joy, love and positive surprise can generate satisfaction. Positive emotions are also related to the formation of satisfaction in the context of tourist services, such as restaurants (Lin & Mattila, 2010) and theme parks (Bigné et al., 2005). Recently, in the context of ethnic restaurants, Song and Qu (2017) found that consumption emotions mediate the influence of dining experiences on customer satisfaction. Therefore, we propose the following hypotheses:

*H6: Emotion has a positive impact on satisfaction*

*H7: Emotion has a positive impact on loyalty*

In order to answer the second research question related to the influence of satisfaction on loyalty and willingness to pay more and how the relationship between these last two variables is, we have conducted the revision of the relevant literature and supported the subsequent hypothesis (H8-H10).

### *2.2.4. Satisfaction and behavioural intentions*

In the context of hedonic services, Bigné et al. (2008) define loyalty as a behavioural intention which includes intentions to revisit the museum and to recommend it to others. Research findings indicate that satisfaction is highly correlated with behavioural responses such as positive word of mouth and repurchase intentions (Athanassopoulos et al., 2001; Szymanski & Henard, 2001). The satisfaction-loyalty relationship is well-documented in hospitality, tourism and marketing disciplines (Tanford & Jung, 2017). Satisfaction is one of the main precursors of loyalty in both marketing (e.g., Cronin & Taylor 1994; Cronin, Brady, & Hult 2000; Lam et al., 2004) and tourism (e.g., Baker & Crompton 2000; Chen & Chen 2010; Prayag, Hosany, Muskat, & Del Chiappa, 2017). Based on these arguments, we hypothesise:

*H8: Satisfaction has a positive impact on loyalty*

Satisfaction has also been linked to willingness to pay more (WPM) (Bigné et al., 2008). WPM is connected with a customer's (re)purchase decision. That is, for a given price, customers would (re)purchase the product if their WPM is higher than the purchase price while they would not (re)purchase it if their WPM is smaller than the purchase price (Eisenbeiss, Cornelißen, Backhaus, & Hoyer, 2014). Homburg et al. (2005) reveal the existence of a strong, positive impact of customer satisfaction on WPM, and their study provides evidence for the stronger impact of cumulative satisfaction rather than of transaction-specific satisfaction on WPM.



Franke and Piller (2004) and Schreier (2006) provide empirical evidence of a higher willingness to pay for products that are self-designed than for standardised products. A possible reason for a higher WPM is that co-created products provide a higher preference fit than their standardised counterparts (Franke & Schreier, 2010). Therefore, we propose the following hypothesis:

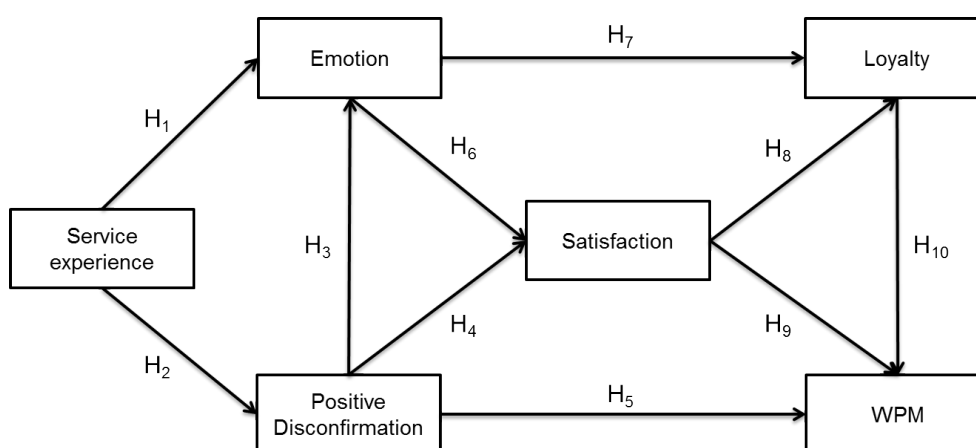
*H9: Satisfaction has a positive impact on WPM*

Reichheld and Sasser (1990) indicate that “companies with long-time customers can often charge more for their products or services” (p. 4). For instance, the majority of people will pay more to stay in a hotel they know or to go to a doctor they trust than to take a chance on a less expensive competitor (Reichheld & Sasser, 1990). In the context of leisure activities, Bigné et al. (2008) found a direct link between loyalty and WPM for both museum and theme park visitors. Similarly, in the context of e-commerce, Srinivasan et al. (2002) found that e-loyalty had a positive impact on WPM. Therefore, we predict the following:

*H10: Loyalty has a positive impact on WPM*

Figure 1 shows the proposed relationships and the hypothesis proposed in this research.

**Figure 1. Proposed Model**



### 3. METHODOLOGY

Out of the most visited museums in London, 5 of them were chosen for this study based on their location, the number of visitors and type. The selected museums were initially contacted and informed about the overall aim of this study. A questionnaire was designed and used to collect data.

The questionnaire was pretested. It was sent to five academics and to seven practitioners, including five professional tourist guides who also collaborated with the data collection. A pilot survey was conducted, using a sample of 70 respondents. Reliability of measurements was estimated using Cronbach’s alpha. Values exceeded the cutoff point 0.70 (Nunnally, 1978).

The questionnaire had 29 items to measure each of the variables included in the conceptual model of Figure 1. These items were adopted from existing literature and from validated scales. Specifically, the factors and items used to measure them were: Disconfirmation (2 items) (Churchill & Surprenant, 1982; Oliver, 1981; Wirtz & Bateson, 1999a); emotions (10 items, with two sub-dimensions: Pleasure (six items) and arousal (four items) (Russel, 1980); satisfaction (five items) (Oliver, 1997); loyalty (four items) (Zeithalm et al., 1996); WPM (two items) (Zeithaml et al., 1996) and service experience (six items) (Caldwell, 2002; Rowley, 1999).

The service experience of museum visitors includes learning, education and recreational experience. Museum visitors' service experience was measured based on the repertory grid survey conducted by Caldwell (2002). The results of that survey were particularly striking in that they indicate that visitors perceive and value their museum experiences in very different terms from those suggested by the surveys designed by museum professionals. The dominant sorts of category suggested by visitors are completely different from those that are currently measured by museum marketing specialists. In that study (Caldwell, 2002), visitors to 11 London museums indicated that they think in terms of the categories 'art', 'history', 'interesting', 'educational', 'enjoyable', 'place to take school children', rather than those service categories focused on by museum managers, such as special openings and food.

Additionally, the questionnaire included some demographic variables (gender, nationality, type of museums visited and age), and degree of co-creation measured by four items (Bettencourt, 1997; Lengnick-Hall, Claycomb, & Inks, 2000). Finally, as indicated by some authors (Bigné et al., 2008; Knowles et al., 1993), previous studies showed that consumers' mood states might bias their evaluation of the service experience. In order to avoid this possible bias, in our study a control question about mood (dichotomous) was introduced "*Just before the experience in this museum my mood may have strongly predisposed my experience*" (yes/no). A total of 7 visitors responded affirmatively; therefore, these cases were discarded for further analysis in order to avoid bias in their service evaluations (Knowles et al., 1993).

The population under study is given by adult tourists who visit museums in London. A total of 850 questionnaires were distributed and 283 valid responses were considered, out of these seven cases were discarded so, finally, 276 cases were analysed, which means a usable response rate of 32%. This response rate is similar to that obtained in other similar market research (e.g. visitbritain.org). Therefore, a convenience sample was used in this research (Malhotra, 2010).

Data were obtained from museum visitors in London. The reason why London was chosen is that it is one of the world foremost cities in the number and prestige of its museums. In 2015, over half of the UK's adult population visited a museum or gallery and over 70 million people visited museums or galleries (National Museums Director's Council, 2015). The museum industry makes a greater contribution to UK's GDP than the car manufacturing and other major industries and supports an estimated 195,000 jobs (Heritage Lottery Fund and Visit Britain, 2010).

Data were collected from visitors just after the visit to make sure that they had a very recent experience, some of them being outside the entrance, others in the cafeteria of the museum and the rest in the bus when they were being transferred. The questionnaires were

administered with the contribution of 5 professional tourist guides, all of them were instructed and trained by the researchers. Most of the data were collected through the online version with tablets or smartphones by using a link and with the support of a QR code that was printed in small cards, created to facilitate the access to the link with the questionnaire. In addition, some hard copies were printed to facilitate other respondents. The participation in the study was voluntary and the respondents were informed about the general purpose of the investigation, the procedure to be followed, the anonymity of the answers and that the information provided would not be used individually, but rather in an aggregate mode. The questionnaire was designed to be completed in an estimated time of 6-7 minutes.

Regarding socio-demographic characteristics of the sample: Male (49%); Female (51%); International (66%); Domestic (34%); Painting Museums (29%); History Museums (24%); Both Painting and History Museums (47%). The distribution by ages was: 65 and older (7%); 55-64 (10%); 45-54 (22%); 35-44 (28%); 25-34 (9%); 18-24 (24%).

## 4. RESULTS

### 4.1. *Measurement model*

In order to test the proposed hypotheses, firstly, the scales were validated and, secondly, the model (Figure 1) was estimated. A confirmatory factor analysis (CFA) was conducted to validate the multi-item scales<sup>1</sup>. Structural equation modelling was performed to estimate the model. The robust maximum likelihood method was used, as the data collected in the sample did not follow a multivariate normal distribution ( $b1p = 113.34$ ,  $p < 0.01$ ;  $b2p = 918.92$ ,  $p < 0.01$ ;  $\acute{o}mnibus = 71.76$ ,  $p < 0.01$ ).

The results of the CFA are shown in Table 2 for the multi-item scales, where the variable 'emotion' is specified as a second order latent variable with two first order dimensions (pleasure and arousal) and the variance of latent variables is fixed to unit. The global fit indices of the model are adequate (GFI = 0.99; AGFI = 0.99; RMSEA = 0.04; CFI = 0.94; NNFI = 0.93), while the Satorra and Bentler chi-square is significant due to the dependency of the sample size of such statistic index ( $\chi^2_{SB} = 494.96$ ;  $p < 0.01$ ) (Hair et al., 2013a). Thus, it can be concluded that the model adequately reproduces the covariance matrix, which allows to consider the validity and reliability of the scales used in this study.

All coefficients that relate each latent variable to the respective items are significant and the values are close to or above 0.70. For those coefficients whose values are below 0.70, it was tested whether the removal of the item had significant impact on composite reliability or the average variance extracted (AVE). For this reason, it was decided to maintain them to avoid affecting the construct's content validity (Hair et al., 2013b). Finally, the AVE achieved values

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<sup>1</sup> Previous to CFA, the Bartlett sphericity test and the KMO were calculated. The value of KMO is 0.88, so the adequacy of the correlations are meritorious (Mooi & Sarstedt, 2010, p. 207-208). On the other hand, the Bartlett's test of sphericity is significant ( $\chi^2 = 2676.14$ ;  $p < 0.01$ ). Therefore, the correlations between the items are different from the identity matrix.

that are above or equal to the recommended value of 0.50. If we add to this that the composite reliability is for all cases above 0.70, then it can be concluded that the scales that have been used are reliable and have convergent validity (see Table 2).

**Table 2. Convergent validity and reliability**

Latent variable	Ítem	Estimate	Std. Err.	p-value	Reliability and AVE
Positive disconfirmation (PD)	D1	0.94	0.01	0.00	$\rho = 0.92$ AVE = 0.86
	D2	0.91	0.01	0.00	
Pleasure (PLEA)	PLEA1	0.77	0.03	0.00	$\rho = 0.89$ AVE = 0.56
	PLEA2	0.73	0.04	0.00	
	PLEA3	0.75	0.03	0.00	
	PLEA4	0.67	0.04	0.00	
	PLEA5	0.81	0.02	0.00	
	PLEA6	0.77	0.03	0.00	
Arousal (ARO)	AROU1	0.66	0.05	0.00	$\rho = 0.80$ AVE = 0.50
	AROU2	0.62	0.06	0.00	
	AROU3	0.77	0.03	0.00	
	AROU4	0.76	0.04	0.00	
Emotion (EMO)*	Pleasure	0.87	0.02	0.00	$\rho = 0.89$ AVE = 0.80
	Arousal	0.91	0.02	0.00	
Satisfaction (SAT)	SAT1	0.77	0.04	0.00	$\rho = 0.87$ AVE = 0.58
	SAT2	0.79	0.04	0.00	
	SAT3	0.70	0.05	0.00	
	SAT4	0.75	0.04	0.00	
	SAT5	0.81	0.03	0.00	
Loyalty (LOY)	LOY1	0.72	0.04	0.00	$\rho = 0.81$ AVE = 0.52
	LOY2	0.69	0.05	0.00	
	LOY3	0.76	0.04	0.00	
	LOY4	0.71	0.05	0.00	
Willingness to pay more (WPM)	WPM1	0.91	0.01	0.00	$\rho = 0.91$ AVE = 0.83
	WPM2	0.91	0.01	0.00	
Service experience (SE)	SE1	0.78	0.03	0.00	$\rho = 0.86$ AVE = 0.50
	SE2	0.66	0.05	0.00	
	SE3	0.69	0.05	0.00	
	SE4	0.69	0.05	0.00	
	SE5	0.72	0.05	0.00	
	SE6	0.69	0.05	0.00	

Notes: (\*) Second order latent variable;  $\rho$ : composite reliability; AVE: Average variance extracted.

**Table 3. Discriminant validity**

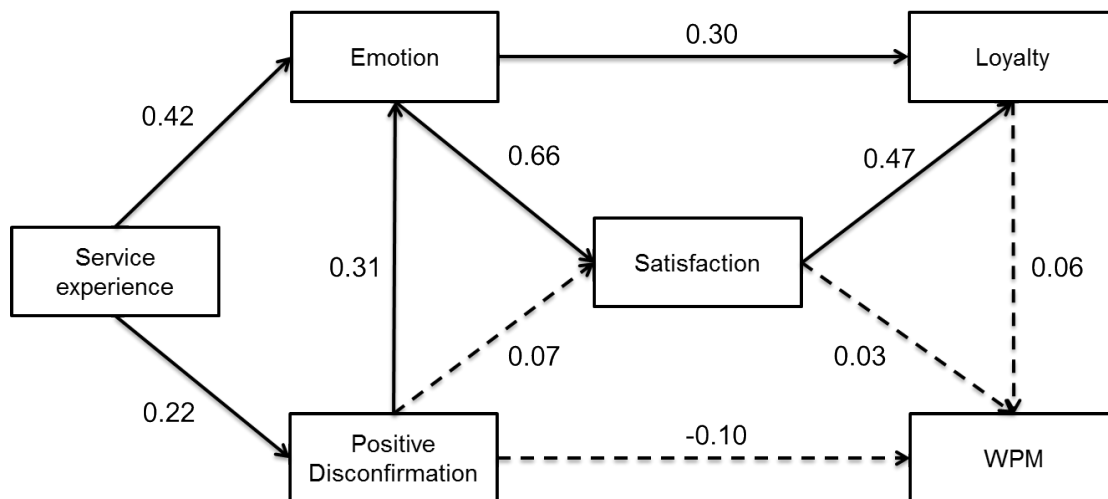
	PD	SAT	LOY	WPM	SE	EMO
PD	0.93					
SAT	0.33	0.76				
LOY	0.28	0.68	0.72			
WPM	-0.07	0.04	0.06	0.91		
SE	0.22	0.45	0.41	0.03	0.71	
EMO	0.40	0.68	0.62	-0.07	0.49	0.89

Note: Diagonal elements represent square root of AVE. Non-diagonal elements are the correlations among latent variables. PD: positive disconfirmation; SAT: satisfaction; LOY: loyalty; WPM: willingness to pay more; SE: service experience; EMO: emotions.

The criteria proposed by Fornell and Larcker (1981) have been used to test the discriminant validity; this is shown in Table 3. None of the squared correlations between each pair of latent variables is higher than the AVE; for this reason it can be concluded that the scales used in this research have discriminant validity (see Table 3).

Once it had been shown that the scales are valid and reliable, we proceeded to estimate the proposed model in Figure 1 using robust maximum likelihood. The fit indexes of the model show that the model adequately reproduces the covariance matrix ( $\chi^2_{SB} = 496.94, p < 0.01$ ; GFI = 0.99; AGFI = 0.99; RMSEA = 0.04; CFI = 0.94; NNFI = 0.92). Out of the 10 proposed relationships, 6 of them are significantly different from zero, while 4 of them (dashed lines) are not. More specifically, service experience has a positive significant relationship on emotions and on positive disconfirmation. Therefore, H1 and H2 are supported. Secondly, positive disconfirmation has a positive and significant relationship on emotions; therefore, H3 has also received empirical support. Thirdly, the effect of positive disconfirmation on satisfaction and also on the willingness to pay more did not reach significant values; therefore, H4 and H5 must be rejected. Fourthly, emotions play an important role when determining tourists' satisfaction and loyalty to the museums. Therefore, H6 and H7 are supported. Fifth, satisfaction has a positive and significant influence on loyalty; therefore, H9 is supported. Finally, willingness to pay more is not influenced by satisfaction and by loyalty; for this reason, H9 and H10 must be rejected (see Figure 2).

**Figure 2. Standardised coefficients in the proposed model**



In Figure 2, some of the estimated relationships are not significant. On other occasions, although the relationship is found in the predicted direction and is statistically significant, the coefficient has a medium value. Moreover, it is hypothesized that the relationship between each pair of variables is equal for all individuals, but this could be incorrect, as the literature has identified many moderator variables. For instance, the relationship between satisfaction and loyalty is complex (Bloemer & Kasper, 1995) and depends on many characteristics of the consumer, including socio-demographic variables (Mittal & Kamakura, 2001) and the level of co-creation (Grisseemann & Stokburger-Sauer, 2012; Prebensen, Kim, & Uysal, 2016). As a

consequence of what has been mentioned earlier, it is possible that the relationship estimated in Figure 2 may differ due to the heterogeneity of the sample and ignoring it could give rise to bias in the estimated parameters (Jedidi, Ramaswamy, DeSarbo, & Wedel, 1996).

There are many circumstances where either the underlying market segments are unknown, or the existing market segments, defined *a priori*, fail to display such heterogeneity in terms of consumer behaviour (DeSarbo, Kamakura, & Wedel, 2006). Postulating homogeneous segments based on such prior knowledge occurs when differences are expected, because these differences are explained by existing theory that incorporates moderators or contextual factors. When theory does not assume heterogeneity, even though it exists, or when theory indicates heterogeneity but the specified group variables do not sufficiently capture it in the population, unobserved heterogeneity occurs. In these circumstances, uncovered heterogeneity can expand the theory, and unobserved heterogeneity is turned into observed theory heterogeneity for future studies (Becker, Rai, Ringle, & Völckner, 2013).

In short, heterogeneity has been studied in two ways. Firstly, it can be produced by a variable or observed characteristic that provokes the existence of differences in the estimated relationships between two or more groups. In order to analyse these differences, the sample is divided into two or more groups based on observable characteristics, such as age, gender or country of origin. This way of addressing heterogeneity is denoted as *a priori* or *commonsense*. The main advantage of this is that it is a simple way of segmenting the market. However, this has the inconvenience that the chosen segmentation criteria may not be optimal and, therefore, are not generating a solid base to build a competitive advantage (Dolnicar, 2004). Secondly, heterogeneity can be the consequence of variables that cannot be directly observed, as they are latent. This way of segmenting the market is called *post-hoc*, *a posteriori* or *data-driven* segmentation. The main advantage of this is that the latent variable that is producing the identification of the segments is associated with observable characteristics that can be used subsequently to describe them. However, the main inconvenience derives from the fact that the identification or construction of the segments is done using statistical techniques chosen by the researcher that have an impact on the solution. Fortunately, in recent years, some procedures have been developed with objective statistical criteria that minimise the effect of the researcher in the final solution. One of them is the finite mixture models. According to Sarstedt and Ringle (2010), a finite mixture assumes that the data come from several subpopulations or segments wherein each segment is modelled separately and the overall population is a mixture of segment-specific density functions. Therefore, homogeneity is not defined in a deterministic way, but by means of probability. The finite mixture models enable clustering observations and estimating parameters simultaneously, thus avoiding the biases that occur when models are estimated separately.

Model-based clustering procedures in the context of simultaneous equation models and structural equation models have been proposed by Jedidi et al. (1996). It is assumed that, conditional upon segment  $s$ , the vector of observed indicators has a multivariate normal distribution. The likelihood is:

$$L(y, x/\mu, \Sigma) = \prod_{i=1}^N \sum_{s=1}^S \pi_s f_s(y, x/\mu_s, \Sigma_s)$$

where  $y$  are indicators of endogenous latent variables,  $x$  are indicators of exogenous latent variables and  $\pi_s$  is the segment size.

The likelihood needs to be maximised with respect to the free parameters ( $\pi_s, \mu_s, \Sigma_s$ ) and a pre-specified number of segments. These free parameters are functions of the measurement and structural components in the proposed model. The likelihood is maximised using the Expectation-Maximization algorithm (EM), which has a complex form derived by Jedidi et al. (1996).

In order to discover if there are different segments in the analysed sample, the values of latent variables have been calculated by averaging the items for each case (Cho & Kim, 2015). This is due to the following reasons: 1) our interest is to know if the relationships of the structural model are different for each segment and 2) the scales used in this research are valid and reliable and other alternatives, such as the factor scores, are not easily replicated across studies because they are based on the factor matrix, which is derived separately in each study (Hair et al., 2013c). This new set of variables is used in path analysis to estimate the model of Figure 2 for each latent class. According to Cho and Kim (2015), summarising multiple indicators as one scale score is appropriate when the dimensionality is guaranteed, as in this case (see Table 2).

Table 4 shows the fit indexes of the proposed model for a number of segments between 1 and 5. According to Jedidi et al. (1996), to test the null hypothesis ( $H_0$ ) of  $K$  classes against the alternative hypothesis ( $H_1$ ) of  $K+1$  classes, the standard likelihood ratio test statistic is inappropriate because it is not (asymptotically) a full rank quadratic form under  $H_0$ . To tackle this problem, researchers frequently use information criteria. Information criteria correspond to a penalised likelihood where the penalty term increases with the number of parameters and/or the number of observations. Information criteria generally favour models with large log-likelihoods and few parameters and are scaled so that a lower value represents a better fit. Popular information criteria include Akaike Information Criterion (AIC), Consistent Akaike Information Criterion (CAIC) and Bayesian Information Criterion (BIC). Bozdogan (1987) noted that, among information criteria, the AIC tends to lead to over-parameterised models. The BIC and CAIC are preferred because they take into account the sample size and tend to favour more parsimonious mixture models. In addition to these criteria, the entropy criterion (EN) is useful to examine if results produce well-separated segments. EN criterion values may range between 0 and 1 and indicate the fuzziness of the partition based on the case-by-case posterior probabilities of membership. EN values around 0.50 to 0.60 for a given  $K$ -class solution can be indicative of sufficient separation.

According to what has been mentioned above, a solution based in two segments is the most appropriate, as the values for the CAIC (3113.61) and BIC (3077.61) are smaller for the combinations of the segments that have been used (1 to 5 segments or classes). Moreover, the value of the entropy is higher than the recommended 0.60 ( $EN = 0.63$ ) (see Table 4). The first segment is composed of 42.75% of the tourists of the sample, while the second segment represents 57.25%. The segment size, or prevalences, is a consequence of the estimation step of the model (Wedel & Kamakura, 2000).

**Table 4. Evaluation criteria**

Number of segments	1	2	3	4	5
LogLik	-1499.49	-1437.64	-1414.18	-1392.69	-1381.14
AIC	3038.98	2947.27	2932.36	2921.38	2930.28
BIC	3111.39	3077.61	3120.62	3167.56	3234.40
CAIC	3131.39	3113.61	3172.62	3235.56	3318.40
EN	-	0.63	0.75	0.80	0.82

Notes: LogLik: Log-Likelihood values; AIC: Akaike Information Criterion; BIC: Bayesian Information Criterion; CAIC: Consistent Akaike Information Criterion; EN: Entropy.

Table 5 shows the standardised coefficients for each relation in each of the segments and also the level of significance. An analysis of the coefficients for each of the segments shows that the sample is heterogeneous and that the relationships between the variables of the proposed model are different. In the first segment, satisfaction and loyalty are strongly related to emotions ( $\beta = 0.86$ ,  $p < 0.01$  and  $\beta = 0.84$ ,  $p < 0.01$ , respectively). In addition, service experience and positive disconfirmation has a positive significant influence on emotions ( $\beta = 0.52$ ,  $p < 0.01$  and  $\beta = 0.24$ ,  $p = 0.04$ ). However, neither satisfaction, loyalty nor disconfirmation have an influence on tourists' willingness to pay more for museum visits. As a consequence of these factors, this group of tourists develops a way of processing based mainly on feelings and emotions experienced when visiting a museum.

The second segment is processed in a different way. Loyalty is not related with emotions ( $\beta = 0.19$ ,  $p = 0.06$ ) and satisfaction is its main antecedent ( $\beta = 0.49$ ,  $p < 0.01$ ). Satisfaction still has a significant positive relationship with emotions ( $\beta = 0.47$ ,  $p < 0.01$ ), although this relationship is clearly smaller if compared with the first segment. Satisfaction is also significantly related to positive disconfirmation, ( $\beta = 0.16$ ,  $p = 0.01$ ), a variable linked to a higher cognitive effort. Finally, service experience has influence on positive disconfirmation ( $\beta = 0.39$ ,  $p < 0.01$ ) and on emotions ( $\beta = 0.30$ ,  $p < 0.01$ ) with coefficients which are quite similar. Finally, disconfirmation is positively related to the willingness to pay more ( $\beta = 0.27$ ,  $p = 0.01$ ). Therefore, it could be said that the second segment performs a more rational processing of the experience. In this segment, the role of emotions is still significant, although smaller than the first segment, and a component more linked to rational processing has more importance.

A comparison of the coefficients obtained in each of the identified segments has been carried out, in order to better understand if the importance of the emotions is different between both segments. Thus, the relationship between service experience and emotions is greater in the emotional segment ( $t = 1.98$ ,  $p = 0.05$ ), which means that a change in the service experience will generate higher values of the emotions that are higher in the emotional segment compared to the more rational segment.

The emotions generated by the service experience contribute to the formation of satisfaction and loyalty (see Figure 2). When comparing the coefficients of the relationship between emotions and satisfaction, it is observed that the influence of emotions is significantly higher in the emotional segment ( $t = 3.24$ ,  $p < 0.01$ ). Analogously, the relationship between emotions and loyalty is significantly higher in the emotional segment compared to the more rational segment ( $t = 2.50$ ,  $p = 0.01$ ). In summary, these results highlight that in the emotional segment, satisfaction and loyalty are mainly the result of more intense emotions that are created after the experience with the service.



There is also another fact that differentiates the processing carried out between the emotional and the rational segment and that is given by the relevance of positive disconfirmation in the rational segment. Disconfirmation is a cognitive process that implies a comparison between expectations and performance and therefore a more rational processing. As shown in Table 5, the relationship between service experience and positive disconfirmation, as well as the relationship between positive disconfirmation and satisfaction, is only significant in the more rational segment (segment 2).

**Table 5. Standardised coefficients (two segments)**

Relationships			Segment 1 (42.75%)			Segment 2 (57.25%)		
			Emotional			Rational		
			Estimate	Std. Err.	p-value	Estimate	Std. Err.	p-value
SE	□	PD	0.08	0.10	0.45	0.39	0.06	0.00
SE	□	EMO	0.52	0.09	0.00	0.30	0.07	0.00
PD	□	EMO	0.24	0.12	0.04	0.16	0.18	0.40
PD	□	SAT	0.00	0.13	1.00	0.16	0.07	0.01
EMO	□	SAT	0.86	0.09	0.00	0.47	0.08	0.00
EMO	□	LOY	0.84	0.24	0.00	0.19	0.10	0.06
SAT	□	LOY	-0.02	0.24	0.93	0.49	0.07	0.00
PD	□	WPM	-0.12	0.09	0.19	0.27	0.11	0.01
SAT	□	WPM	0.10	0.12	0.41	-0.17	0.11	0.13
LOY	□	WPM	0.06	0.13	0.62	-0.06	0.09	0.54

Notes: PD: Positive Disconfirmation; SAT: Satisfaction; LOY: Loyalty; WPM: Willingness to Pay More; SE: Service Experience; EMO: Emotions

The described segments should be interpreted in terms of observable and practically meaningful variables. To do so, we have conducted a post-hoc analysis with 5 explanatory variables (degree of co-creation, gender, place of origin, type of museum and age) to explain the posterior probabilities membership (Hahn, Johnson, Herrmann, & Huber, 2002; Sarstedt, 2008; Sarstedt, Ringle, & Gudergan, 2016). The 4 items of co-creation were averaged as their reliability was very high ( $\rho = 0.81$ ; AVE = 0.54) and all factor loadings gave high values in standardised terms and significantly different from zero. Moreover, the global fit indexes for the confirmatory factor analysis for this scale are adequate ( $\chi^2_{SB} = 3.05$ ,  $p = 0.22$ ; GFI = 0.99; AGFI = 0.97; RMSEA = 0.04; CFI = 1.00; NNFI = 0.99). Gender and place of origin are dummy variables where women and international tourists are the reference category. For the case of type of museum, three dummy variables were created, labelled as painting museum, history museum and both painting and history, and the last one was used as the category of reference. Finally, regarding age, four dummy variables were created (18-34; 35-44; 45-54 and over 55) and the category 18-35 years old was used as the category of reference.

Table 6 shows the coefficients obtained using as dependent variable the posterior probabilities of segment two (for the case of the first segment, the coefficients are the same, except the constant, but with a changed sign). The used variables contribute to explaining the variance of the dependent variable ( $F = 11.88$ ,  $p < 0.01$ ) meaning 24% of the variance. It can be observed that the co-creation degree maintains a positive and significant relationship ( $\beta = 0.10$ ,  $p < 0.01$ ) with the probability of belonging to segment two, that is, more rational. Therefore, it could be said that, when the co-creation degree of the tourist increases, the

probability of that tourist belonging to segment two is higher. When international tourists are compared with domestic tourists, it can be observed that domestic ones have a higher probability of belonging to segment two ( $\beta = 0.09$ ,  $p = 0.04$ ). Thirdly, tourists that only visit one museum, compared with tourists that have visited several museums, have more probability of belonging to segment two ( $\beta = 0.11$ ,  $p = 0.03$  [painting museum];  $\beta = 0.14$ ,  $p = 0.01$  [history museum]). Fourthly, the probability of belonging to segment two is reduced when the age of the tourist is over 44 years old, as the coefficients obtained for tourists between 45 and 54 years old ( $\beta = -0.12$ ,  $p = 0.03$ ) and for tourists over 55 ( $\beta = -0.33$ ,  $p < 0.01$ ) are negative and significant. Finally, gender does not seem to have a significant influence on the probability of the tourist being classified in segment two.

To sum up, the tourist of segment two, the more rational segment, could be described as someone young (below 45 years old), with residence in the country, who is visiting one museum each time and who participates actively in co-creating along with the service provider to enhance the experience. However, the tourist of segment one, the more emotional segment, can be described as visitors who are more than 45 years old, coming from other countries and with a reduced degree of co-creation.

**Table 6. Estimated coefficients for the probability of membership to rational segment**

Independents variables	Estimate	Std. Err.	p-value
Intercept	0.20	0.10	0.05
Degree of co-creation	0.10	0.02	0.00
Gender [0=men; 1=woman]	-0.01	0.04	0.72
Place of origin [0=international; 1=domestic]	0.09	0.04	0.04
Type of museum: painting	0.11	0.05	0.03
Type of museum: history	0.14	0.05	0.01
Age: 35-44	0.00	0.05	0.97
Age: 45-54	-0.12	0.06	0.03
Age: over 55	-0.33	0.06	0.00

## 5. DISCUSSION AND CONCLUSION

The main research problem addressed with this study was the need for the consideration of the service experience processing from a broader perspective, incorporating an *ante hoc* perspective that includes activities preparatory for the experience and not only from the *ex post facto* perspective that has been widely used in previous studies. Thus: a) the incorporation of co-creative anticipatory activities by the visitors have been considered also as part of the visiting experience; b) it has been challenged the general assumption of most previous studies that tourist visitors constitute homogeneous samples, for that reason it has been offered a new perspective that is open to the consideration of the potential heterogeneity of the sample.

In order to address these research challenges, a study was conducted. Firstly, a causal model was developed and was empirically tested with museum visitors in London. This model explained the factors causing satisfaction loyalty and the WPM (Bigné et al., 2008). Secondly, to inquire into heterogeneity, a latent class analysis was conducted to try to discover potential

segments of visitors, as well as identifying the variables describing those groups and the exploration of the diverse behaviour of each segment in forming loyalty and the WPM.

The findings of this study contribute to practitioners and also to opening new avenues for researchers. One of the main findings is that the data clearly indicated that two segments have been found: 1- Emotional, 2- Rational and that some relationships between factors are different for both segments. Thus, the relationship between emotions and satisfaction and also the relationship between emotions and loyalty is higher in the emotional segment compared with the rational one. Conversely, the relationship between service experience and positive disconfirmation -a variable linked with a more rational processing as it implies a comparison between expectations and results-, and also between positive disconfirmation and satisfaction are significant only in the rational segment.

In order to promote loyalty in the first segment (emotional), which is dominated by visitors that are mainly non-domestic, with a wide range of ages, are less co-creative and visit several museums each time, practitioners should consider the emotional aspects of the visit in order to increase loyalty. They do not need to focus so much on cognitive aspects of the museum, but on the hedonic elements, fun, sensory dimension, physical evidence, facilities, supporting facilities such as cafeterias and restaurants and on the experience. Some implications of this finding should lead managers of museums to highlight on social media and websites elements related to emotional aspects of the experience itself. The use of new technologies, such as augmented reality could improve the hedonic elements of visitors' experience (Tussyadiah, Jung & tom Dieck, 2018; He, Wu, & Li, 2018).

On the other hand, the second segment (rational) is dominated by domestic young tourist visitors with higher levels of co-creation of the experience than the other segment and who mainly focus their visit on only one museum when they visit London. For these visitors, unlike in previous studies (Lee et al., 2008), it was found that there is no significant relationship between emotion and loyalty. Therefore, this has clear implications for museums and practitioners in this industry, if they are planning to promote loyalty among young and domestic visitors they should mainly focus on the rational aspects of the experience rather than on the emotional. This means that museum visitors belonging to segment 2 tend to become more involved in co-creative preparatory activities before their visit to the museum. Our findings also indicate that the visitors from segment 2 (rational) tend to visit only one museum each time, this can facilitate to focus on each visit what could give light to understand why they are more open to co-create the visit being involved in preparatory activities compared with those other (segment 1, emotional) that tend to go to several museums on each visit to London.

In the light of previous discussion, this could be a clear indication to practitioners in this industry that, in order to attract young domestic visitors, they should focus on the design of communication activities stressing the cognitive elements of the visit rather than the emotional aspects and increasing the offer with more tools and opportunities to co-create the experience before the visit happens. In this sense, they could develop initiatives that provide more specific contents such as thematic exhibitions and specialised temporary ones that serve as bait for new visitors. For this type of museum visitor, the preparation and the anticipation of the visit is especially relevant. The use of apps and augmented reality can be useful, but for this segment it is important to previously assure that there is quality content available that can enhance the cognitive aspects of the visit.

According to our findings, the gender of the visitor has no major implications. Regarding the age, there is a higher presence of young visitors in the rational segment (Hoyer et al., 2013). In relation to origin, the domestic visitors can be found predominantly in the rational segment.

The results also showed that, for the second segment (rational), there is a significant relationship between the service experience and positive disconfirmation (Ryu & Han, 2011), what makes that their expectations are exceeded, which indicates that, as these visitors get involved in preparatory activities, their expectations of the experience would be higher than those who did not. Therefore, practitioners could bear in mind that, during their communication with visitors, they should keep their promises. In this sense, practitioners should select carefully their communications strategies with this group so as not to raise their expectations beyond their capacity to provide the service as these visitors prepare for the visit carefully and their expectations would be higher.

Furthermore, the findings showed that for this second segment (rational) there is a significant relationship between satisfaction and loyalty (Bigné, Sanchez, & Sanchez, 2001; Um, Chon, & Ro, 2006) which indicates that, in order to increase loyalty among this segment, practitioners should carefully monitor and evaluate customer satisfaction levels. Thus, it could be concluded from these results that, in order to attract this group of visitors, practitioners need to be more innovative and creative in providing information and communication with visitors about how they can co-create and anticipate the visit as part of the service experience.

The discussed findings of this research offer valuable theoretical contributions. This research has demonstrated the convenience of using co-creation of the preparation of the visiting experience as criteria with which to segment the museum visitors market. Taking into consideration the crucial role that emotions play in tourism marketing (Bigné & Andreu, 2004) and how co-creation can have a relevant role in these relationships, this study provides an analysis of the impact of co-creation on the relationships between cognitive and affective elements of users of the hedonic services and their impact on satisfaction and behavioural intentions.

The main result of this study reveals that the co-creation of the preparation of the visiting experience has an influence on the relationship between emotions, satisfaction and loyalty (Bigné et al., 2001; Chi & Qu, 2008). In particular, the segment identified as 'rational' is composed of individuals who are mainly domestic visitors, mainly young people and engaged in co-creation activities.

The proposed framework and empirically tested in this study was integrated by cognitive and affective elements, also satisfaction and behavioural intention factors. In future studies, it could be identified whether the visitors come on their own or organised in groups, such as with tourist agencies, families or friends. Another area of future research could be to investigate what kind of preparatory activities are more used by visitors when they co-create the visiting experience and to what extent the different activities could affect differently their satisfaction. In this sense it could also be studied how augmented reality could help to enhance the emotional elements of the visit, in particular for visitors from the first segment (emotional) based on the finding that they tend to process the experience from the emotions and the impact of emotions on loyalty.

One of the limitations of this study is that the results are specific to one city (London); although it is one of the major destinations in museum visitors of the world, it cannot be generalised to all museum visitors. It would be informative to do similar studies in other cities and countries and compare the results. In order to gain a better knowledge about the implications of these two segments, it would help to conduct a qualitative study to explain the rationalities and differences between them. It would be interesting to study this model and the role of co-creation in a context of transformational (Pizam, 2017) as the next stage in the evolution of experiential travel.

This study offers interesting managerial implications, some of them have already been mentioned. The results shown in this research could be useful for museum marketing managers and for policy makers in order to define their marketing strategies. In particular, they could consider that the rational segment (domestic and young visitors) are more open to co-creation activities. Museum that propose to launch Apps or websites with preparatory material could design marketing activities to target this audience.

Understanding differences of perception and behavioural intentions across these two identified segments can have relevant managerial implications. Managing museum visitors' experience from the perspective of the co-creation of the preparation of the experience can have positive consequences in terms of engagement with visitors before the visit and this can have a significant effect on exceeding their expectations.

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