Abstract

Objective: The identification of museum attributes is essential when analysing the different factors that attract visitors and studying it in order to improve efficiency in museums, as this could affect the use of funds for developing a marketing campaign to attract visitors. This paper offers a literature review that considers museum visits and museum attributes before proposing a methodology.

Methodology: The use of big data applied to tourism research is vital, as it allows for the consideration of the opinions of museum visitors. The case study in this paper is the Thyssen-Bornemisza National Museum in Madrid, Spain. The method for identifying the attributes consists of a textual analysis of TripAdvisor reviews written in English (2500) and Spanish (2500). The information is captured using WebHarvy and is analysed using Nvivo12.

Results: After analysing the thousand words that were used most frequently, the main attributes were detected, as well as whether the perception of these attributes was positive or negative. The museum’s location and the building itself were the most highly valued attributes. Other attributes that were valued positively were the peripheral services of the museum, such as its food and beverage services.

Limitations: The main limitation is that TripAdvisor is not an entirely reliable source of information, so it will be necessary to obtain more reviews to analyse.
以本文分析来识别游客感知博物馆属性的一种方法：对（西班牙）提森-博内米萨国家博物馆的探索性分析

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文章摘要

研究目的：博物馆属性的识别对分析吸引游客的各种因素，并对研究其状况以提高博物馆效率尤其重要。其后可以是利用资金以开展营销活动来吸引游客。在提出有效方案之前，本文首先提供有关一些博物馆参观数据和博物馆属性的文献综述。

分析方法：为要考虑到博物馆的意见，在旅游业的研究当中应用大数据是极为重要的。本文专题以（西班牙马德里）提森-博内米萨国家博物馆为研究案例。识别博物馆属性的方法包括对在TripAdvisor平台上以英语（2500）及西班牙语（2500）撰写的评语内容进行分析。我们使用WebHarvy抓取信息，然后使用Nvivo12来进行分析。

研究结论：经分析一千个最常见的单词后，我们检测到博物馆的主要属性和游客对其的感知，不论是正面或负面的。正面的属性包括博物馆的外观服务（食品和饮料服务），其中博物馆地理位置和建筑物本身为最受重视的属性。

研究局限：由于TripAdvisor并非是完全可靠的信息来源，因此我们需要获得更多有关评语以进行分析。

实际应用：属性识别可以有助改善决策过程，并有助于深入理解博物馆参观者的感受。了解这些方面的因素能为博物馆服务提供有效的改善方案。

关键词：文化旅游、本文分析、参观者体验、属性、提森-博内米萨国家博物馆的探索性分析。

JEL 分类号：Z32、Z33、L89。

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Practical implications: The identification of attributes allows for improved decision making, as well as facilitating a better understanding of the museum’s visitors’ perceptions. Being aware of these aspects enables the modification of the museum’s services through proposals for changes and improvements.

Keywords: Cultural tourism; Textual analysis; Visitor experience; Attributes; Thyssen-Bornemisza National Museum.

JEL codes: M10, M31.

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1. Introduction

Museums are linked to cultural tourism, as these attractions are located in tourist destinations (Brida *et al.*, 2016; Condevaux *et al.*, 2016; Gravari-Barbas & Graburn, 2012; Santa-Cruz & López-Guzmán, 2017; Vacas, 2011). These facilities attract visiting tourists and have an influence on the destination (Avila-Gómez & Ruiz, 2018; Gravari-Barbas, 2018; Noonan & Rizzo, 2017; Zaraté & García, 2017). Numerous studies have investigated museum visitors’ experiences in order to understand the process of selecting a museum for visiting, as well as the satisfaction of visitors (Brida *et al.*, 2012; Falk & Dierking, 2013; Gómez-Zapata *et al.*, 2018; Han & Hyun, 2017; Loureiro & Ferreira, 2018; Sheng & Chen, 2012; Taheri *et al.*, 2013; Taheri *et al.*, 2014). When it comes to evaluating museums, a significant issue has been the need to study the attributes of museums and how they are correlated with the perception of tourists. The identification of attributes and a better understanding of visitor perception supports marketing decisions in museums (Li, 2020), which can lead to an increase in visitor satisfaction. In terms of the profile of cultural tourists, it is essential to highlight that those that have a high socio-cultural profile demand personalised and high-quality tourism (Sánchez Sánchez & Montes Botella, 2019). An analysis of tourist and visitor opinions on TripAdvisor has been used in previous studies and is an accepted method for identifying attributes (Xiang *et al.*, 2017; San-Martín Gutiérrez *et al.*, 2019).

This article aims to determine a method for identifying museum attributes and how their value is perceived by tourists using textual analysis (Zanibellato *et al.*, 2018; Kim & Lee, 2019; Orea-Giner *et al.*, 2019). This method has been proven using the case study of the Thyssen-Bornemisza National Museum in Madrid, Spain, and an exploratory analysis of the results has been offered. The research questions that have arisen from this objective are:

RQ1. Could the identification of museum attributes help to measure their perceived value and improve decision making?
RQ2. How can text mining and textual analysis methods help to identify museum attributes?
RQ3. How are the attributes of the Thyssen-Bornemisza National Museum perceived by tourists?
RQ4. Is it possible to evaluate the experience of museum visitors through an analysis of TripAdvisor reviews (eWOM)?

This study’s contribution is twofold. First, we proposed a method for analysing museum attributes. Second, this method was tested on a case study. The method has been updated and modified so that a textual analysis can be carried out in order to identify museum attributes, following methods applied by Kim and Lee (2019), Orea-Giner et al. (2019) and Zanibellato et al. (2018). In this way, a method has been proposed through which it is possible to identify specific attributes of each museum. These results will make it possible to evaluate the attributes identified from the case study and classify them according to their perceived value by tourists.

This paper is divided into six sections. The first section examines previous studies that have focused on this topic. The second section presents necessary information about the Thyssen-Bornemisza National Museum. The methodology is described in the third section. In the fourth section, the results from the electronic word of mouth (eWOM) data are presented. A discussion of the findings is developed in the fifth section and our conclusions are drawn in the final section.

2. Literature Review: Visitor Experience and Museum Attributes

The study of Pine and Gilmore (1998) focused on the definition of experience to support the fact that, when a person buys an experience, they do not just make an investment of time in order to enjoy it, they are also involved in the experience and participate actively. Chan and Yeoh (2010) examine the relationship between museums and experiences because museums offer tangible and intangible characteristics that depend on the quality of the performance and experience. Therefore, an analysis of visitors’ experiences is crucial in order to develop new management strategies and improve the decision making of museum managers (Bitgood, 2016; Wells et al., 2016).

Within this area of investigation, the process of the visitor experience has been divided into three phases: before, during and after (Falk & Dierking, 2013). Falk and Dierking describe the museum experience using three different contexts: the personal context, the socio-cultural context and the physical context. The personal context includes the different degrees of experience and knowledge, the mode of learning and the ‘differences in individual interest, attitudes, and motivations for visiting’ (Falk & Dierking, 2013, p. 27). The socio-cultural context depends on the cultural background of visitors, such as their race, ethnicity, socio-economic status and country of origin. Finally, the physical context comprises the building and the...
objects that are contained within the building. The analysis of museum attributes is related to these three categories. The different attributes of a museum could be influenced by personal context, as this could affect one’s decision of whether or not to visit a museum. Socio-cultural contexts also influence the museum’s attributes. Finally, the physical context is connected with the museum’s attributes, as the exhibition, the building and the other physical services are identified as an important part of the motivation for visiting a museum. Camarero et al. (2015) have reported that some museums have identified the necessity of creating an innovative collection to improve positive impressions on the visitor. Instead, other museums have developed a different proposition that is focused on the ‘Disneyfication of culture’ (Matusitz & Palermo, 2014). This fact is linked with Burton, Louviere and Young (2009) proposal about the decision to visit a museum. They consider that it depends on one’s level of education and standard of living. It is difficult to explain how, at a time when it is possible to study and analyse visitor experience in order to promote museum visits, visitor numbers can be reducing.

Plaza (2010) has suggested that the value of cultural heritage is not only measured by the benefits it generates from a commercial point of view, as it provides other forms of value that are widespread. Preliminary work in this field has identified a connection between museums and cultural economy. Gómez-Zapata et al. (2018) present the analysis of public goods as ‘clubs’. Buchanan (1965) explains that museums can be considered as local gothic clubs, so they have to focus on the groups they want to attract, as well as on the consumption of these cultural goods and services. Gori and Fissi (2013) suggest a connection between museum management and socio-cultural effectiveness and efficiency. This study discusses the way in which measuring results facilitates sustainability and stakeholder relations (Gori and Fissi, 2013). Regarding this matter, Kinghorn and Willis (2008, p. 287) state that ‘museums represent both a cultural attraction and a consumption experience, often able to raise the wealth of the hosting community’. Mudzanani (2015) addressed the issue of creating a collaborative platform using museums. The impact of museums on communities is also connected with economic regeneration strategies.

Tsai and Lin (2018) support the view that museums are part of the leisure entertainment industry, within which they can create added value. One way to understand this value is by measuring their attributes. Busacca and Padula (2005) support the view that there is a relationship between attributes, satisfaction and dissatisfaction. With respect to the analysis of service expectations and perceptions, the SERVQUAL model measures five dimensions related to the quality of services: tangibles, reliability, responsiveness, assurance and empathy. Using this model, it is possible to evaluate the perceived quality of a particular brand or company (Parasuraman et al., 1988). The contribution of Parasuraman et al. (1991) is key to understanding how communication between clients and service providers can make it possible to increase the quality of a service. In the SERVQUAL model, word-of-mouth communication is fundamental (Fine et al., 2017). However, there has been some disagreement concerning the validity of this model. On the other hand, the SERVPRF model considers...
tangible elements, reliability, responsiveness, security and empathy as fundamental elements of the evaluation of service quality. The difference between these two models is that the latter assesses perceptions, not expectations (Cronin & Taylor, 1994). These systems have previously been reviewed and applied (Mestanza & Muñoz, 2008), which suggests that customer experience management and research are fundamental to the creation of marketing strategies (Homburg et al., 2017).

Big data techniques allow for the improvement of consumer experience (Holmlund et al., 2020). The data must be analysed because it is through analysis and interpretation that data can provide value, allowing one to obtain conclusions that could improve decision making (Holmlund et al., 2020). Therefore, eWOM (electronic word of mouth needs to be analysed in order for consumer perception and experience to be understood (Liu et al., 2018; Yoon et al., 2019). TripAdvisor reviews are considered to be a source of eWOM information (Qiu et al., 2012; Ayeh et al., 2013; Yan et al., 2018). Consumers rely on online reviews to make decisions, and the information contained in the reviews allows for conclusions to be drawn about visitors’ experiences (Fang et al., 2016; Xu & Li, 2016). An analysis of the content available on social media makes it possible to monitor the influence of a brand’s image (Költringer & Dickinger, 2015; Wong & Qi, 2017). As the evaluation of customer travel is a source of value for digitised markets, it is possible to draw conclusions about a customer’s loyalty to a brand by analysing this data (Kuehnl et al., 2019). With regard to consumer perception, it is also essential to highlight the role of the local community, which influences the tourism experience (Garduño & Cisneros, 2018).

Davis and Swanson (2009) emphasise that the quality of a service is related to interactions with the staff. Edmonds, Muller and Connell (2006) identify three types of attributes that engage visitors. Some attributes are ‘attractors’, which are defined as the attributes that attract visitors. Other attributes are categorised as ‘enablers’ because they engage visitors. Finally, some attributes are considered to be ‘relaters’ because they encourage a long-term relationship with the museum.

3. The Thyssen-Bornemisza National Museum

The Thyssen-Bornemisza National Museum is situated in Madrid and is included in The Art Walk. This area is called Paseo del Prado and it was a project developed by King Carlos III of Spain. During the 19th century, the following museums were built in this area: Prado National Museum (1819), the National Museum of Anthropology (1875), Museo Nacional Centro de Arte Reina Sofía (1986), Thyssen-Bornemisza National Museum (1992) and, most recently, CaixaForum Madrid (2008) (Vacas, 2005). The nomination of Prado-Retiro (2019) for World Heritage candidacy by UNESCO is an area that includes the geographical space containing the Thyssen-Bornemisza National Museum. This area is popular with tourists. Benarroch (2016) reported that the Thyssen-Bornemisza National Museum presents a journey through art history from the 12th century to the 20th century, including
works by Durero, Rubens and Picasso. It is a national museum, meaning that it is publicly managed. The Thyssen Bornemisza Foundation, governed by a board of trustees, is involved in its management.

It is generally accepted that the Thyssen-Bornemisza National Museum is an excellent museum (Frey, 2000). To support this view, it is necessary to show the statistical data of its visitors. Thyssen-Bornemisza National Museum is the third most visited museum in Madrid, according to its number of visitors during 2018 (Museo Nacional del Prado, 2018; Museo Nacional Centro de Arte Reina Sofia, 2018; Museo Nacional Thyssen-Bornemisza, 2018). The Thyssen-Bornemisza Museum has been used as a case study because of its characteristics, status and its position as the third most visited museum in Madrid, as well as convenience for the authors.

4. Method

The method proposed for analysing the value of museum attributes perceived by tourists is based on research by Kim and Lee (2019), Orea-Giner et al. (2019) and Zanibellato et al. (2018). Our approach is also based on textual analysis methods (Kim & Lee 2019; Kim et al., 2017; Fang et al., 2016). This study is divided into four phases (Fig. 1).

Figure 1. Proposed method with attributes detected from TripAdvisor

The first phase involved downloading the information using WebHarvy. The reviews downloaded were 5000 comments (2500 in Spanish and 2500 in English) about Thyssen Bornemisza National Museum on TripAdvisor.

Table 1. Research fact sheet created by the authors in 2020

| Platform     | TripAdvisor |
|--------------|-------------|
| Reviews      | English: 2500  
               | Spanish: 2500 |
| Date         | English: From July 15, 2015 to March 24, 2019.  
               | Spanish: From February 24, 2016 to March 25, 2019. |
| Analysis     | Text Mining and Textual analysis. |
The second step consisted of developing an analysis of the common words that appeared in the reviews on TripAdvisor about the Thyssen-Bornemisza National Museum. TripAdvisor was chosen over other review sites because of the fact that it is an established online community for tourism (Liu et al., 2018; Yan et al., 2018, Yoon et al., 2019). The software used to analyse the data was Nvivo12. The thousand most frequent words were analysed in order to select the attributes of the case study.

The third phase focused on data coding and analysis to identify the keywords from the previous phase, so that the content of the text could begin to be classified. The data obtained was then processed, which made it possible to draw conclusions that will be applicable to the management of these museums in terms of improving decision making and developing resilience. Finally, the analysis of the results was carried out, following the model of analysis proposed by Zanibellato et al. (2018).

5. Results

This research carried out a textual analysis of 5000 comments (2500 in Spanish and 2500 in English) on TripAdvisor about the Thyssen-Bornemisza National Museum. Our results are in line with previous results found by Zanibellato et al. (2018). The study by Zanibellato et al. (2018) presented three key classifications of attributes: Core offerings, external services and ambience. This empirical analysis has used the same classifications. The core offerings include the museum’s permanent collection and temporary exhibitions. Peripheral services include attributes such as the gift shop, food and beverage services, audio-guides, staff, ticketing and other activities. Ambience is vital, and this type of attribute comprises queuing, crowding and photos, among others. Table 1 presents the different attributes of the Thyssen-Bornemisza National Museum.

The most striking result that emerged from the data is the fact that the core offerings are essential in terms of this museum being visited (Graphic 1). A museum’s core offerings consist of both their permanent collection and temporary exhibitions. The results were significant for both attributes. The permanent collection was mentioned 170 times in English (EN) and 585 times in Spanish (ES). This result confirms that visitors consider the permanent collection to be a vital attribute of this museum. The single most marked observation to emerge from the data comparison was the use of the term ‘temporary exhibition’, which appeared with a higher frequency than ‘permanent collection’ (EN:181; ES: 850).
### Table 2. Attributes detected from TripAdvisor

| Attributes                      | References in English (EN) | Coverage % | Number of reviews [N=2500] | References in Spanish (ES) | Coverage % | Number of reviews [N=2500] |
|---------------------------------|---------------------------|------------|-----------------------------|---------------------------|------------|-----------------------------|
| **1. Core offerings**           |                           |            |                             |                           |            |                             |
| Collection                      | 3582                      | 5.2        | 5830                        | 7.45                      |            |                             |
| Permanent collection            | 170                       | 0.13       | 585                         | 0.67                      |            |                             |
| Temporary exhibitions           | 181                       | 0.16       | 850                         | 0.99                      |            |                             |
| **2. Peripheral services**      |                           |            |                             |                           |            |                             |
| Activities                      | -                         | 0.00       | 43                          | 0.04                      |            |                             |
| App                             | 11                        | 0.01       | 7                           | 0.02                      |            |                             |
| Audio-guides                    | 25                        | 0.02       | 62                          | 0.04                      |            |                             |
| Food and beverage (F&B) services| 465                       | 0.24       | 296                         | 0.23                      |            |                             |
| Gift shop                       | 222                       | 0.06       | 133                         | 0.07                      |            |                             |
| Guides                          | 264                       | 0.12       | 66                          | 0.03                      |            |                             |
| Luggage storage                 | 2                         | 0.04       | 3                           | 0.01                      |            |                             |
| Resting spaces                  | -                         | 0.00       | 10                          | 0.01                      |            |                             |
| Staff                           | 84                        | 0.04       | -                           | 0.00                      |            |                             |
| Ticketing                       | 1278                      | 0.77       | 869                         | 0.54                      |            |                             |
| Toilets                         | 10                        | 0.04       | 14                          | 0.04                      |            |                             |
| Website                         | 27                        | 0.01       | 28                          | 0.01                      |            |                             |
| **3. Ambience**                 |                           |            |                             |                           |            |                             |
| Accessibility                   | 40                        | 0.06       | -                           | 0.00                      |            |                             |
| Building                        | 349                       | 0.21       | 164                         | 0.11                      |            |                             |
| Crowding                        | 134                       | 0.08       | -                           | 0.03                      |            |                             |
| Display                         | -                         | 0.00       | 35                          | 0.05                      |            |                             |
| Garden                          | -                         | 0.00       | 44                          | 0.03                      |            |                             |
| Lighting                        | -                         | 0.00       | 33                          | 0.01                      |            |                             |
| Location                        | 244                       | 0.14       | 26                          | 0.03                      |            |                             |
| Photos (the possibility of taking pictures) | 152 | 0.07 | 34 | 0.02 | | |
| Public museum versus private museum | 237 | 0.22 | 162 | 0.37 | | |
| Queuing                         | 141                       | 0.06       | 107                         | 0.06                      |            |                             |

*Source: Created by the authors based on the general attributes proposed by Zanibellato et al. (2018).*

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The results of the analysis of facility-based services revealed that ticketing was the most mentioned attribute (EN: 1278; ES: 869). We also found significant values for F&B services (EN: 465; ES: 296), the gift shop (EN: 22; ES: 133) and guides (EN: 264; ES: 66). These findings highlight the value of these attributes in a visitor’s experience.

The examination of the ambience-related results showed that the building is the most remarkable attribute of this type (EN: 349; ES: 164). Another attribute that emerged during the analysis was the question of whether the museum is public or private (EN: 237; ES: 162). Thyssen-Bornemisza National Museum is a public museum, but the content of the reviews shows that it is perceived as being a private museum. Broadly speaking, significant values were found for location (EN: 244; ES: 26), photos (EN: 152; ES: 34), queuing (EN: 141; ES: 107) and crowding (EN: 134; ES: 0).

6. Findings and Discussion

Our results share a number of similarities with Zanibellato et al. (2018) findings. For example, it was found that there are three different types of attributes (core offerings, peripheral services and ambience). We found more attributes than those reported by Zanibellato et al. (2018), including the museum’s status (public versus private), activities, app, luggage storage, accessibility, location, garden, website, toilets and F&B services.
An evaluation of these attributes through an analysis of the eWOM results allows us to identify critical aspects that relate to the quality of the museum, which are linked to expectations and perceptions of the service. These results show different perceptions of the tourist experience. The data suggests that there are different interests, attitudes and motivations for visiting this museum. There are similarities between the opinions made in English and Spanish, but it is also possible to find variations.

Through an analysis of the comments’ textual content, including keywords linked to certain attributes, the positive or negative perceptions of those different attributes and their significance can be identified (Fig. 2). The attributes with a frequency higher than 0.10 were selected. The most striking result from the data was that the museum’s permanent collection and temporary exhibitions were evaluated positively. The analysis reveals that peripheral services were also evaluated positively. However, the museum’s ticketing system was valued negatively.

Finally, the most representative environmental attributes that had a positive valuation were the museum’s building and location. On the other hand, there was confusion as to whether this museum is public or private, as the comments showed that visitors consider it to be a private museum. This could have a negative effect on their perceptions of the museum.
7. Conclusions and Limitations

This paper has underlined the importance of visitors’ experiences and a museum’s attributes. It has provided evidence that the attributes of museums are an essential component of their visitors’ experiences. In terms of consumer behaviour, innovative actions are possible (García-Muiña et al., 2019). The analysis and identification of a museum’s attributes facilitates a better understanding of the value assigned to critical elements of their offerings, in addition to acquiring essential information for the development of management strategies and the improvement of decision making (Torres-Ortega et al., 2018). The findings of this study indicate the importance of identifying a museum’s attributes in order to improve visitor experience. This point is confirmed by Falk and Dierking (2013), who state that:

All aspects of the museum and its activities need to work together to ensure quality museum experiences. This fact means that staff working in food services, security, retail, exhibitions, education, marketing, curation, and administration all need to talk together and jointly develop the goals of the museum and a shared commitment to ensure quality visitor experiences (p. 193).

This paper has presented a method that allows for the identification of museum attributes perceived by tourists through textual analysis and a round-table discussion, in order to produce accurate results. We have obtained comprehensive results that demonstrate the importance of identifying museum attributes in order to improve the knowledge of museum professionals. Through the identification of attributes and their assessment by tourists, it is possible to say that the preferences of potential consumers and visitors are fundamental in guiding management strategies (RQ1). The proposed method has certain advantages over carrying out surveys, such as the fact that the amount of time required, and the costs involved are lower. Furthermore, the influence of the researcher on the answers given by tourists is avoided because the tourists’ opinions and perceptions of different attributes and services were expressed voluntarily (RQ2). We have confirmed that the attributes perceived by tourists about the Thyssen-Bornemisza National Museum have been identified and divided based on their categorisations (RQ3). The findings of this study show that the identification of attributes allows us to identify how the museum’s different services are valued, as well as the viability of applying new management strategies based on the opinions of the users (RQ4).

The most important limitation is the fact that TripAdvisor is not a completely objective source of information. Despite this, we believe that this work could be a starting point in proposing a method that aims to analyse the value of museums perceived by tourists and the local community. This part of the study has provided an analysis of these attributes, and it will be completed and developed in additional phases. This study has gone some way towards enhancing our understanding of the value of museums.
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