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CULTURAL TOURISM: A STUDY ON MUSEUMS AND THE INTERNET

TURISMO CULTURAL: UM ESTUDO SOBRE MUSEUS E INTERNET

TURISMO CULTURAL: UN ESTUDIO SOBRE MUSEOS E INTERNET

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ABSTRACT: Museums have always been closely linked to tourism, as they are considered relevant cultural attractions. In this scenario, studies on tourism and museums have proven essential to understanding the prominent role that museums have assumed in the tourism industry. Museums are increasingly using the Internet to promote themselves and attract visitors. The aim of this research, with data collection in June 2017, was to classify the top ten ranked museums by the website TripAdvisor. The most visited museums in Brazil were identified in 2016, according to data from the Brazilian Institute of Museums of the Ministry of Culture. Next, we identified the best-evaluated museum by TripAdvisor, making a correlation between the two. The method used to assess the museums' websites considered three typologies: Electronic brochure, museum in the virtual world, and interactive museum. The websites were analyzed using images, photos, videos, access to exhibitions, information retrieval, and research and educational area. The results of the survey showed that the Brazilian museums evaluated already have their own websites, with most of them being classified as "museums in the virtual world" websites.

KEYWORDS: Museum. Tourism. Types of museum website.

RESUMO: Os museus sempre tiveram uma estreita relação com o turismo, pois são considerados importantes atrativos culturais. Nessa conjuntura, o aprofundamento dos

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estudos relacionando turismo e museus tem se revelado importante para se compreender como os museus têm assumido um papel de destaque no segmento turístico. Cada vez mais os museus têm se utilizado da *internet* para a sua promoção e para a atração de novos visitantes. Esta pesquisa, com dados coletados em junho de 2017, teve como objetivo classificar os dez museus mais bem avaliados pelo *site* TripAdvisor. Para tanto, foi realizada a identificação dos museus mais visitados no Brasil em 2016, conforme dados do Instituto Brasileiro de Museus do Ministério da Cultura. Em seguida, fez-se a identificação dos mais bem avaliados pelo TripAdvisor, fazendo uma correlação entre ambos. O método de avaliação dos *sites* dos museus considerou três tipologias: folheto eletrônico, museu no mundo virtual e museu realmente interativo. Nos *sites* foram analisados: a utilização de imagens, fotos, vídeos; o acesso às exposições; a recuperação da informação; o setor de pesquisa e o setor educativo. Os resultados da pesquisa evidenciaram que os museus brasileiros avaliados já possuem *sites* e que a maioria deles se classificam em *sites* de “museus no mundo virtual”.

PALAVRAS-CHAVE: Museu. Turismo. Tipologias de *sites* de museu.

RESUMEN: Los museos siempre han tenido una estrecha relación con el turismo, pues se consideran importantes atractivos culturales. La profundización de los estudios relacionando turismo y museos se ha revelado importante para comprender cómo los museos han asumido un papel destacado en el segmento turístico. Cada vez más los museos se han utilizado de Internet para su promoción y para la atracción de nuevos visitantes. Esta investigación, con datos recogidos en junio de 2017, tuvo como objetivo clasificar los diez museos mejor valorados por el sitio TripAdvisor. Para ello se realizó la identificación de los museos más visitados en Brasil, en 2016, según datos del Instituto Brasileño de Museos, del Ministerio de Cultura. En seguida se hizo la identificación de los más bien evaluados por los viajeros, haciendo una correlación entre ambos. El método de evaluación de los sitios web de los museos consideró tres tipologías: folleto electrónico, museo en el mundo virtual y museo realmente interactivo. En los sitios se analizaron el uso de imágenes, fotos, vídeos, acceso a las exposiciones, recuperación de la información, sector de investigación y sector educativo. Los resultados de la investigación evidenciaron que los museos brasileños evaluados ya poseen sitios web y que la mayoría de ellos se clasifican en sitios de “museos en el mundo virtual”.

PALABRAS CLAVE: Museo. Turismo. Tipologías de sitios web de museo.

INTRODUCTION

The deepening of the studies relating to tourism and museums has proved valuable to understand how the museums have assumed a prominent role in the tourism industry. Besides, the understanding this scenario makes it possible for museums to attract even more visitors, improving their exploration as tourism services.

Museums, like any institution tuned with the dynamics that have changed since the emergence of technology in our daily lives, also seek to present to their visitors information about their collection and cultural activities in an increasingly interactive and innovative way (Pujol-Tost, 2011). Studies of museums and the Internet gain strength from the concept of Museum 2.0 (Simon, 2010) and, more recently, research papers on categorization of museum websites deserve attention (Piacente, 1996; Teather, 1998), as well as the studies of the museums in the virtual arena or the cybermuseums, such as those addressed by McKenzie (1997), Gant (2001), Henriques (2004), and Weilenmann, Hillman & Jungselius (2013).

The advent of the Internet and its application in tourism brought about new behaviours, from the development of new habits, such as flight scheduling and hotel reservations, to the denomination of a new area of studies of this science, the *e-Tourism* (Buhalis & Law, 2008; Neuhofer, Buhalis & Ladkin, 2014). The technological evolution that has occurred mainly over the last decades has generally converted the use of new technologies into something essential both for the creation and management of a tourist destination and for the success of the trip itself (Caro, Luque & Zayas, 2015).

The internet has resulted in changes to the tourism industry, influencing new trends in consumption and behaviour (Neuhofer, Buhalis & Ladkin, 2014). In this sense, we can highlight different types of technologies that boosted tourism, namely, database, data networks, software engineering, geographic information systems, 3D modelling, positioning systems, among others. All these technologies can be used individually or collaboratively, in the management, development, auditing, and promotion of tourism products (Poon, 1993; Sheldon, 1997; Inkpen, 1998).

Nowadays, it is a fact that the Internet has changed the way people and institutions communicate. It can be said that the same phenomenon is happening when it comes to museums. Museums, like any other institution, are present in the world wide network. Museum websites have proliferated since the 1990s (Oliveira & Silva, 2007). Today, many museums have their institutional websites (Pinho, 2007).

In general, museums seek to bring to their users information about the content of their collection and about the cultural activities they develop, presenting themselves in an increasingly interactive and innovative way (Pujol-Tost, 2011; Mateos-Rusillo & Gifreu-Castells, 2017; de Almeida Martins & Baracho, 2019). The use of technologies is increasingly observed to attract more public and add informational value. Museums have used the Internet for streamlining their activities, developing websites, and, in some cases, offering technologies that make virtual visits possible (de Almeida Martins & Baracho, 2019).

In view of the above, this study is based on the hypothesis that Information and Communication Technologies (ICT) are relevant for the dissemination of cultural heritage, since they enable visitors to experience a steady process of diversifying the ways of seeing and sharing contents (Barendregt & Bekker, 2011; Caro, Luque & Zayas, 2015; de Almeida Martins & Baracho, 2019). From this perspective, museums around the world use new technologies to introduce a new dynamic to their exhibition spaces (Braga, Landau & Cunha, 2011). The following research question is presented: "How do museums use the Internet to disseminate information?"

In order to answer to the research question, this paper aims to identify and categorize the websites of the top ten museums as ranked by TripAdvisor. Introducing itself as "the world's largest travel website," TripAdvisor is a portal with travel tips and comments of destinations around the world, with a record of millions of users/travellers seeking information on places to plan their trip (TripAdvisor, 2018).



According to the description on the website, in it, the traveller can find reliable information about the world. Trust is essential in decision making in tourism. Online travel surveys highlight online information as the most reliable source of travel information. Information about travel published on websites is the most reliable source (38%) and the most useful (32%) information for people, informing how they should plan and research their travels (Santos *et al.*, 2016).

Annually, the TripAdvisor website grants the Travellers' Choice award to the highlights of each category, and one of these categories is the best museums, based on information and assessments of their users. In this sense, the specific objectives of this research are (a) to present the most visited museums in Brazil; and (b) identify the museums awarded by the TripAdvisor website and categorize their respective websites, according to the categorization proposed by Piacente (1996).

The themes museum and the Internet were motivated, mainly, by the observed modernization of the museums. More and more museums have widely adopted new technologies as a communication tool, following the behaviour of the information society (Castells, 2000).

Regarding the importance of this study, it is observed that in addition to contributing to academic research, this study can also help managers and professionals in the museum industry to better understand the use of ICT by museums in their exhibitions, leading them to perceive how these institutions have become cultural attractions that gather increasingly connected users. The study also contributes to the museum planning process, helping them to become increasingly visited tourist attractions.

LITERATURE REVIEW

Museums are tourism attractions, since they shelter much of the knowledge sought by the tourists in their journeys. Museums have always had a close relationship with tourism, understood as famous cultural tourism attractions (Gomes, 2001; Rodrigues, 2001; Barretto, 2008; De Varine, 2013), being the first attraction to be sought by visitors (Ignarra, 1999). Therefore, museums attract not only local visitors, as they entice the attention and interest of those who arrive at a destination and soon want to immerse themselves in the local cultural life and discover the attractions it offers (Barretto, 2008; Brazil, 2014).

The attractions of cultural tourism, including museums, are ideal to be developed as generators of tourist demand (Gudbrandur, 2004). For some tourism destinations, it is common to include a museum in the travel itinerary (Silva, 2009). In this perspective, when thinking of tourism destinations, it means, mainly, associating them with museums (Barretto, 2008), and more and more the museological institutions have become a centre of convergence for tourists (Brida, Meleddu & Pulina, 2012). According to the International Council of Museums, there are more than 55,000 museums around the world (ICOM, 2017). In Europe, for example, museums are among the most visited tourist attractions and represent one of the

most substantial economic assets (Carugati, Hadzilas & Demoulin, 2005). It is the case of the Louvre Museum in Paris, which attracted nearly 10 million visitors in 2016 (Louvre, 2017). Other examples of museums that are among the most visited ones in Europe are the British Museum (London), the Orsay Museum (Paris) and the Vatican Museum (Rome). According to the platform Museums.eu (The European Museums Network), in 2016, the ten most visited museums in Europe received a total of 50 million visitors.

Museums represent vital organizations in our societies, as they contribute to the economic growth of countries, mainly through cultural tourism (Kéfi & Pallud, 2011). In this context, museums can exert a positive catalyst influence for some tourist destinations (Plaza, 2000), given that the importance of museums in the tourism attractiveness of certain regions may even be the determining factor for the development of tourism (Richards *et al.*, 2001; Camilo & Bahl, 2017).

From the perspective that museums operate as central tourist attractions, with large visitation flows, Plaza (2000) evaluated the impact of the Guggenheim Museum Bilbao in Spain, analyzing the performance of tourism growth originated by this museum. The Guggenheim Museum Bilbao has had a significant positive impact in the region since its inauguration in 1992, due to the capacity of the museum to attract tourists, motivated mainly by the magnitude of the building itself, designed by architect Frank Gehry (Plaza, 2000).

Museums classified as museums of sculptural architecture (Newhouse, 1988) are a trend that emerged in the wake of the formal exploitation of these institutions, as cultural mechanisms created for tourism attractiveness (Neuva, 2017). These museums of sculptural architecture end up establishing a model of building as attractive as its art collections and gradually appear, themselves, as works of art (Greemberg *et al.*, 1996).

In Brazil, the importance of museums as tourist attractions is also no different. According to data from the Brazilian Institute of Museums, the country has more than 3,000 museums (Brazil, 2010) and many have served as significant attractions for the development of tourism.

Given the above, it is observed that museums, in general, have increasingly contributed to the promotion of tourism (Rodrigues, 2001; Barretto, 2008), considering the significant number of visitors they have attracted. Visiting a museum is one of the first tourism activities that visitors plans (Silva, 2009), because many tourists seek to immerse themselves in the local cultural life (Barretto, 2008), where more and more the museological institutions have become tourist convergence centres (Brida, Meleddu & Pulina, 2012). In this sense, the Brazilian museums are increasingly becoming great allies in the development of tourism, such as it is the case with the European museums, which have been attracting tourists on a large scale for a long time.

Museums can offer experiences, ideas, and satisfaction that are not found elsewhere (Kotler & Kotler, 2018). These institutions are no longer mere spaces for the exhibition of objects; they have become places of entertainment and learning



(Román, González & Gascón, 2017). From increasingly fewer contemplative sites, museums have become participative environments (Falk & Dierking, 2016) and that attract an increasingly higher number of visitors.

One of the solutions found to win and retain the different audiences of museums is the increasing use of interactivity (Silva & Santos, 2011). The museums that offer more interactivity in their exhibitions are those of science; worth to highlight the pioneer Exploratorium, founded in 1969, in San Francisco, in the United States (Barretto, 2008). His founder the physicist Frank Oppenheimer, wanted to make natural phenomena accessible and comprehensible to all. In the museological context, interactivity is an element that promotes permanent exchange between visitors and exhibition (Moussouri & Roussos, 2013). This new concept of exhibition facilitates the communication process as it uses several technological resources. In this logic, the museums have adopted the inclusion of ICT in their exhibitions, increasingly exploring the use of technologies and even reformulating the concept of the museum (Braga, Landau & Cunha, 2011).

Some studies indicate that the use of ICT by museums has the capacity to increase the number of tourists, attract new audiences and improve visitors' learning (Lehn & Heath, 2005; Peacock, 2008; Asensio & Asenjo, 2011). Increasingly, these institutions have inserted technologies in their spaces as a tool of communication and innovation, besides proposing contextual and exhibition approaches (Román, González & Gascón, 2017).

The use of ICT by museums is a museological trend nowadays (Pujol-Tost, 2011), where more and more these institutions tend to take advantage of this phenomenon, as a way to broaden the experiences of their visitors in a more participative and interactive way (Falk & Dierking, 2016; Tallon, 2008; Pujol-Tost, 2011; Hughes & Moscardo, 2017).

A more participative museum concept was presented by Nina Simon in the "Participatory Museum", in 2010, proposing a guide that would help the museum to rethink itself as a more dynamic, relevant and interactive cultural institution (Simon, 2010). The participatory museum, also called the Museum 2.0, understands the visitor as a user, consumer, and producer of its contents (Simon, 2010), able to promote greater involvement with the user (Flanagan, 2017; Knoop, Zhang & Van Hoorn, 2017).

The participatory museum covers three principles: the idea of a user-centered institution; the idea that visitors construct their meaning of cultural experiences; and the idea that users have a voice, capable of participating in the construction of the exhibit itself, making these processes dynamic (Simon & Bernstein, 2006; Bonnell & Simon, 2007; Simon, 2010).

It is within this context of participation and interactivity that ICT presents a few advantages and opportunities for cultural institutions, thus offering multiple possibilities for improvements of experience with its visitors (Román, González & Gascón, 2017). ICT is set up in vital tools to the dissemination of cultural heritage since they allow the experimentation of a steady process of diversifying the ways

of presenting and sharing contents in a way that museums could not have ever imagined before (Caro, Luque & Zayas, 2015).

Although museums began to participate in the world network of computers later on (Carvalho, 2017), we observed that they have also increasingly been using the Internet as a way of disseminating and promoting their activities. Nowadays, most museums have a webpage, whether it is a blog, a website, or an elaborate interactive website, called by some scholars as virtual museums (Henriques, 2004). Although the number of museums that use the Internet to maximize their services is growing, they are still in a reduced number and are unaware of the potential for exploiting hypermedia in the museological environment.

Museums are increasingly using the Internet, through their websites. The Internet becomes an essential ally of museums, which can use it for their promotion (Carvalho, 2006). A museum website can attract more visitors and enable visitors to better schedule their trip to the museum, with beforehand information of what they want to see in the institution. A website can also become a tool for presenting the institution (Andrade, 2008).

According to Henriques (2004), the literature presents three analysis typologies for museums in the virtual environment. These typologies were proposed by Mary Piacente (1996) in her thesis *Surf's up: Museums and the World Wide Web*. The first category is the **Electronic Brochure** museum website type, whose objective is to introduce the institution. This type of museum website works as a communication and marketing tool, and its main functionalities are to enable access to the history of the museum and its services, such as working hours. Often, it also presents the staff of the museum and some information about its collections and exhibitions. It is the most common type, and almost every museum uses it. Some are better designed, depending on the resources of the museum, and their main objective is to be a visual introduction, such as a brochure of the museum. In this case, the Internet makes the museum a better known institution and enables easier access to users (Henriques, 2004; Lima & Costa, 2014).

The second category of museum website proposed by Piacente (1996) is the **museum in the virtual world**. In this type of website, the museological institution presents more detailed information about its collection and often offers virtual tours. The museum projects itself in the virtual world and offers a route through its spaces and exhibitions. Often, this type of website presents temporary exhibitions that are no longer physically available, making the Internet a kind of technical collection reserve for exhibitions. Besides, many of them offer the opportunity to view to a considerable part of their collections online, allowing access of the public to objects that are no longer being exhibited at that time (Henriques, 2004; Lima & Costa, 2014).

The last category proposed is the **interactive museum**. This type of website extrapolates the relationship between the virtual and the physical museum, presenting elements of interactivity that involve visitors/users. The interactive museum website is quite different from what visitors would contemplate in a



physical museum, since interactivity is the core of this type of website because it enables interaction with the public. The virtual museum is now a complement to the physical museum, presenting greater complexity of content, but both have the same institutional goals, as they are the same institution (Henriques, 2004; Lima & Costa, 2014).

METHODOLOGY

This study is characterized as an exploratory research (Gil, 2008), using the qualitative method, with bibliographic research. It was divided into two parts. In the first part, the eight most visited museums in Brazil, according to the Brazilian Institute of Museums (IBRAM), were identified, showing the importance of museums as tourist attractions. Next, the most highly rated museums by the TripAdvisor were identified, which was followed by an analysis according to the categorization proposed by Piacente (1996), as shown in Table 1. The authors accessed the museum websites indicated by TripAdvisor and identified on each website features associated with the categorization of Piacente (1996).

Among the reasons for choosing the analysis proposed by Piacente (1996), it is important to mention that until today, it is the most used analysis model to assess the virtual environment of museums. Since it was designed, it is the only typology that classifies museum websites into different categories, being considered a reference model for museology (Teather, 1998; Teather & Wilhelm, 1999; Sabbatini, 2003; Lima & Costa, 2014; Mateos-Rusillo & Gifreu-Castells 2017).

The method used for evaluating the results was the descriptive research. Considering the typology of Piacente (1996), the use of images, photos, videos, access to exhibitions, information retrieval, and research and educational area were analyzed.

Table 1: Categories of museum websites (não é possível corrigir o texto da tabela)

MUSEUM WEBSITE CATEGORIES	
Electronic Brochure	Presentation of the museum from a communication and marketing tool. The user has access to the museum history, to the working hours and, sometimes, to the technical staff of the museum. It is the most common type in almost all museums, being some more elaborate, depending on the resources available, but all have the main objective to be a visual presentation, such as a brochure. In this case, the Internet works to make the museum better known and allow access to the visits
Museum in the virtual world	It presents more detailed information about the collection and often provides virtual visits. The website designs the museum in virtuality and temporary exhibitions that are no longer assembled in its original space, making the Internet a kind of technical reserve of exhibitions. Many of them offer databases of their collection, showing objects that are not on display at that time and information on a specific subject
Interactive museums	Presence of interactivity elements involving the visitor. Sometimes the museum reproduces the informative contents of the museum in person and other cases. The virtual museum is quite different. The interactive museums work with the public in a particular way, and the interactivity allows the public to act on the proposal offered by the museum

Source: Adapted from Piacente (1996) Apud Henriques (2004, p. 5).

FINDINGS

Visiting museums has become an essential and popular element of tourism (Jansen-Verbeke & Rekon, 1996), because, in addition to their attractiveness, museums generate jobs, growth, income and economic development for tourist destinations (Kotler & Kotler, 2018). In 2016, according to IBRAM, the eight most visited Brazilian museums in the country attracted almost 4 million visitors:

Table 2: The eight most visited museums in Brazil in 2016

MOST VISITED MUSEUMS IN BRAZIL – 2016 Visitors	
Museum of Tomorrow (<i>Rio de Janeiro</i>)	1.4 million
Museum of Image and Sound (<i>São Paulo</i>)	446,000
Museum of Arts of São Paulo (<i>São Paulo</i>)	408,000
Museum of Arts of Rio de Janeiro (<i>Rio de Janeiro</i>)	404,000
Imperial Museum (<i>Rio de Janeiro</i>)	368,000
Pinacoteca do Estado de São Paulo (<i>São Paulo</i>)	325,000
Inhotim (<i>Minas Gerais</i>)	322,000
Football Museum (<i>São Paulo</i>)	320,000

Source: Brazilian Museum Institute (IBRAM), 2017

As can be seen in Table 2, based on the number of visits, the Brazilian museums have increasingly become essential centers of convergence of tourists, given the significant number of visitors that they have attracted (Plaza,



2000). Museological institutions, indispensable for culture, education and social organization, are also set up as fundamental instruments for the promotion strategies of the tourism industry (Richards *et al.*, 2001; Camilo & Bahl, 2017).

In addition, by observing some visitation data, according to the annual ranking of the British specialized magazine *The Art Newspaper*, Brazil appears three times in the ranking of the top ten most-visited exhibitions in the world, in 2017 (*The Art Newspaper*, 2018). The three exhibitions were sponsored by the subsidiary of the Banco do Brasil Cultural Center, in Rio de Janeiro. "Mondrian and the Stijl movement," with a total audience of 516,000 people – a daily average of 6,600 visitors, and it was the second most visited exhibition in the world. The exhibition "The human figure in the Masp collection" appears in fourth place, with more than 217,000 visitors – average of 4,000 visitors per day. The exhibition "Los Carpinteros: Vital Object" appears in eighth place with more than 351,000 visitors, with an average of 4,400 visits per day (Brasil, 2017). According to the magazine *The Art Newspaper*, in 2016, four of the ten most-visited exhibitions in the world were exhibited in Brazil, and the Brazilian exhibitions occupy the first three and sixth place of the list, adding together 1,825,163 visitors (*The Art Newspaper*, 2017). These data corroborate the importance of museums as tourist attractions (Barreto, 2008).

Among the most visited Brazilian museums is Inhotim, in Minas Gerais, the home for one of the most important collections of contemporary art in Brazil. This museum, which attracts thousands of visitors to the town of Brumadinho and is distant 60 kilometres from Belo Horizonte, has supported the tourist development of the city and the region (Borges, 2017). According to the institution, Inhotim received more than 322,000 visitors in 2016 (Brasil, 2017).

The Museum of the Portuguese language is a pioneer in the world in its museological proposal. It has in its collection the most significant Brazilian intangible heritage: the Brazilian Portuguese language (Lopes & Turco, 2017). From its inauguration up to the end of 2012, more than 2.9 million people had visited the space, consolidating it as one of the most visited museums in Brazil and South America (Brasil, 2017).

The Museum of Tomorrow, inaugurated in 2016 during the Olympic Games, received in less than a year 1 million of visitors beyond the initially projected 400,000, totalling 1.4 million of tourists (Museum of Tomorrow, 2017). This, perhaps, is also due to the intense media broadcast at its inauguration, as well as other factors such as its bold sculptural architectural style – called a sculptural architecture museum (Newhouse, 1988), and its location along the "Porto Maravilha", an important re-urbanization project of the city of Rio de Janeiro (Oliveira, 2007).

The TripAdvisor website annually grants the Travellers' Choice award to the highlights of each category, based on information and assessments made by its users. According to the website TripAdvisor, the top ten museums in Brazil are: Pinacoteca do Estado de São Paulo, Inhotim, Instituto Ricardo Brennand, Oscar Niemeyer Museum, Imperial Museum, Football Museum, Cultural and

Educational Catavento, Museum of Art of São Paulo, Museum of Science and Technology of PUCRS, and Cais do Sertão Museum (Table 03).

Table 3: The top 10 museums in Brazil according to the "Traveler's Choice 2016"

TRIPADVISOR 2016 TRAVELLERS CHOICE: The 10 best museums in Brazil	
<i>Museum</i>	<i>Location</i>
Pinacoteca do Estado de São Paulo	São Paulo/SP
Inhotim	Brumadinho/MG
Ricardo Brennand Institute	Recife/PE
Oscar Niemeyer Museum	Curitiba/PR
Imperial Museum	Petrópolis/RJ
Football Museum	São Paulo/SP
Cultural and Educational Catavento	São Paulo/SP
Museum of Art of São Paulo (MASP)	São Paulo/SP
Museum of Science and Technology of PUCRS	Porto Alegre/RS
Cais do Sertão Museum	Recife/PE

Source: adapted from Piacente (1996) Apud Henriques (2004, p. 5)

When analyzing table 3, it is observed that of the ten museums awarded by TripAdvisor, most of them (60%) are located in the southeast region of Brazil, a region that historically has the best rates of tourist infrastructure, as well as the largest concentration of tourism services in the country (Becker, 2006).

After the identification of the most well-reviewed museums according to the TripAdvisor website, the researchers analyzed the websites of these museums, and after analyzing them according to the classification of categories of museum websites proposed by Piacente (1996), they reached the following results:

- Electronic Brochure websites: two museums
- Museum in the virtual world websites: six museums
- Interactive museum websites: two museums

The website of the Pinacoteca do Estado de São Paulo falls within the category of electronic brochure museum, because it presents the museum and its services, as well as its opening hours and program. The authors found the museum on the Google Art Project platform, where the virtual tour of this museum is possible. However, since this information is not available to website visitors, it could not be classified as a museum in the virtual world.

The website of the Cais do Sertão Museum was classified as an electronic brochure museum website, since, just like the website of the Pinacoteca do Estado de São Paulo, it offers no virtual tour. The Pinacoteca and the Cais do Sertão Museum have their websites as mere presentation of materials that are used only for advertising purposes (Henriques, 2004; Santos & Lima, 2014). It is worth noting that, contrary to the one that was exposed by Henriques (2004), among the ten



most well-reviewed museums in Brazil, the electronic brochure is not the most common type of website. This finding brings the necessary empirical evidence to the studies of museums on the Internet, showing the advancement of these institutions concerning the use of ICT (Carvalho, 2006; Andrade, 2008, Simon, 2010).

The website of the Inhotim Institute offers a virtual tour, because it integrates its website to the Google Art Project. In this sense, the website of this museum is now considered a museum in the virtual world website type. The website of Instituto Ricardo Brennand presented the same characteristics of Inhotim, with one special feature: in the virtual tour, the visitor has the option of virtually visiting the museum listening to a musical background with the same songs that the visitor can listen to in the real visit.

Another highlight among the museum websites in the virtual world is the website of the Oscar Niemeyer Museum, which allows the online visit of the exhibitions in poster and maintains in a database the exhibitions that have already been disassembled. The websites of the Imperial Museum, Football Museum, and MASP are also classified as museum websites in the virtual world. All the websites of these institutions present information about their institutions, complete schedule, data on their collections and institutional history, and also offer the virtual visit.

According to the research findings, the majority of the ten most well-ranked Brazilian museums by TripAdvisor can be classified as museums in the virtual world. These museums present detailed information about their collections, and in some cases provide virtual tours, presenting themselves in an increasingly interactive way. These strategies meet what Almeida Martins & Baracho (2019) suggests that museum websites aim to supply a demand for information by the public, aiming at better communication.

Finally, two institutions of the ten surveyed are noteworthy mentioning. These are the Cultural and Educational Catavento Museum and the Museum of Science and Technology of PUCRS. Both institutions presented websites with satisfactory parameters for their classification as interactive museum websites. The websites of these museums have elements of interactivity that involve visitors, presenting content such as videos and research, besides the traditional ones that are already presented in their physical spaces, which extrapolate the notion of a virtual tour. These museum websites are truly interactive, and the virtual environment is a supplement that presents a greater complexity of content and contributes to the visitor's experience (Henriques, 2004).

CONCLUSION

This paper showed that most of the Brazilian museums analyzed already have a high rate of interaction of the public with their websites. There are only two museum websites classified as electronic brochures, one of which already has an independent virtual tour platform, by Google Art Project, but it is not informed on its website.

The Internet has brought to museology a new perspective. Not only because it enhanced access to the museums in a more broad manner, but also it enabled museums to go beyond their physical walls. Museums' museological actions over the Internet can have a far greater reach than those within their physical space, as they can encompass a much larger audience. Museums that know how to take advantage of all the possibilities that the Internet offers, creating their virtual museums, can go beyond their borders. Moreover, the possibility of more significant interaction with the public is the great advantage of creating virtual museums, whether they are virtual representations of existing museums or created, especially for the world wide web.

The present paper presented a classification for museums' websites, dividing them into three categories, namely, electronic brochure museum website, museum website in the virtual world, and genuinely interactive museum website, as proposed by Piacente (1996). From this categorization, one can see how the museums have been promoted on the Internet, especially by their websites.

The research has limitations regarding the sample because it was limited to studying only the websites of the most well-ranked museums by the TripAdvisor. Future studies could broaden the analysis including the websites of the most visited museums in Brazil.

From the results herein presented, it is considered that this research brings knowledge that helps future studies related to use of the Internet and museums — bringing empirical evidence to help the managers of these institutions to plan the museums for virtuality.

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