



Capítulo 101

Evaluation of Museum Exhibitions: interactions of Tourists/Visitors with the exhibitions of Fort of the Nativity Scene Museum and Sacred Art Museum, Belém, PA

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ABSTRACT

Museum institutions have transformed their communicative, organizational, and evaluative perspective over time, assigning guidelines aimed at the public. Aware of this, the evaluation of exhibitions has become a valuable tool to identify how public interaction takes place in the context of exhibits. Therefore, this study aimed to evaluate the interaction of tourists/visitors at the Fort of the Nativity Museum (MFP) and the

Sacred Art Museum (MAS), located in the Historic Center of Bethlehem - PA. The methodology consisted of bibliographic research, documentary research, and field research through direct observation, using the Timing and Tracking method by Yallowitz and Bronnekant (2009) and the use of a formulary. Quantitative data related to average times, number of stops, and interaction indicators were used, which were related to qualitative concepts such as Attracting Power and Holding Power (GOINS; GRIFFEHAGEN, 1957), and museum fatigue (ROBINSON, 1928) to evaluate the exhibitions. It was found that in the MAS permanent exhibition, the average number of stops was below half of the minimum number to be considered in each area of the exhibition, denoting a regular Holding Power. In the MFP, this average number of stops was above the minimum number, demonstrating a good Holding Power. As for the interactions of tourists/visitors with the exhibitions, in both museums, there was a reasonableness of Holding Power and Attracting Power. It is concluded that the research involving Timing and Tracking contributed essential data for the interaction of tourists/visitors in the exhibits and that the MAS and the MFP can use this data to make a summative evaluation to improve the permanence and interaction of the visitors with areas where this interaction was not effective.

Keywords: Museums; Tourism; Observation; Interaction; Timing and Tracking.

1 INTRODUCTION

This work aims to address the importance and need of exhibition evaluation, highlighting the understanding of communication that museum institutions create according to their organization and conception, which can be noticeable, from the observation of tourists/visitors throughout the exhibitions. This is to understand their interaction with the exhibitions and what changes can be allocated to which they have an increasingly positive experience within these spaces.

For Godoy, Silveira, and Guimarães (2016), museum institutions have to encourage and provide good experiences, remaining constantly attractive, both to the public they already know, and to those who visit for the first time. For this, it is necessary to conduct research and analysis on the experience of tourists/visitors, as well as the relationship of the public with institutions.

According to Alexandre (2017), museological institutions have undergone major transformations in recent decades and, in the mid-twentieth century, criticism and questioning arises regarding the continuity of conservative practices. They demand, therefore, that these institutions not retain their focus only on objects and collections, but, where and maintain a more interactive relationship with the public.

Currently, the museum's plays a role as a tourist attraction, at the same time as tourism has provided a rich source of potential visitors. With this, some professionals such as educators, museologists and designers are aware of the need for change in these institutions, to reach and attract even more visitors (DALONSO, 2010).

The museums of Sacred Art and the Fort of the Nativity Scene, located in the historical center of Belém do Pará, were chosen as the focus of this research, as they are two of the main landmarks in the history of the municipality, presenting great importance for the historical and cultural heritage of the city. According to Longo (2007) and Costa (2007), after the revitalization, from the Feliz Lusitânia project, the museums of Arte Sacra and the Nativity Scene Fort present a new look, in which the Nativity Scene Fort presents new uses and meanings that are no longer the same as it was in its origins.

In 2002, the Fort of the Nativity Scene passed to receive the Museum of the Meeting, which highlights great historical importance for the process of Portuguese colonization in the Amazon. And in 1998, the buildings of the former Episcopal Palace and the Church of St. Alexander were restored and adapted to receive the Museum of Sacred Art. It brings together the collection of sacred art, whose works were scattered in various churches or the hands of collectors.

Due to the importance of these museums in the city of Belém do Pará, this research started from the following question: has the interaction of tourists and visitors been with the exhibitions of the museums of the Fort of the Nativity Scene and Sacred Art? The answer to this question had as general objective: to evaluate the interaction of tourists/visitors in the exhibitions of the museums of the Fort of the Nativity Scene and Sacred Art. The specific objectives were: (1) to observe the interaction of tourists/visitors with the content presented in the exhibitions; (2) identify the collections that drew the most attention and the most observed; (3) to understand the time of tourists/visitors in each exhibition of the museums. To record

and relate the observational data of the research, the *Timing and Tracking* (YALLOWITZ) studies were used; BRONNENKANT, 2009) and *Attracting Power and Holding Power* (GOINS; GRIFFEHAGEN, 1957), which can assist in planning, correction or future research in exhibitions at the Museum of Sacred Art and the Museum of the Fort of the Nativity Scene.

2 IMPORTANCE OF MUSEUM EVALUATION

Museums are spaces for the gathering of collections of various typologies, which, when identified and contextualized, express a certain historical, social and cultural fact. Constituted from an interest in things, as Burke (2003) points out, museums, by their organization, create a narrative about the objects exposed, which allows individuals to construct knowledge about a given subject or time.

Each institution has a unique style of design and construction of meaning through its exhibitions. An exhibition is held with the placement in the space of panels, texts, images, objects, scenarios, among others, which define a series of possible routes that will be updated according to the interaction procedure of each visitor (ALMEIDA, 2012).

Constituted from an interactive logic, the exhibitions should be contextualized according to the proposed theme. However, one should think about the public's perception of the objects exposed, because museums should stimulate the individual to build his knowledge, based on his organizational dynamics (PADILHA, 2014). Therefore, to understand the effectiveness of the exhibitions, theories and methods for evaluating ex positions were developed, which, throughout the twentieth century, were based on the behavior of the visitor, as well as on the communicative efficiency of museums through the organization of their exhibitions.

The origin of the evaluation of exhibitions begins with the result of *Timing and Tracking in the early* twentieth century, "when Robinson (1928) and Melton (1935,1936) did, which many theorists consider the first systematic observations of visitors in museal exhibitions. They made observations and analyzed general visitation patterns in museums" (YALLOWITZ; BRONNENKANT, 2009, p. 47).

The definition of visitor observation as a valid and reliable evaluative strategy permeated the research throughout the 1990s, so too, there were already institutions that conducted studies related to the recording of time and behavior of visitors in exhibitions. The *Timing and Tracking study method* was most intensively used in the 1990s and to this day is considered as a fundamental part for understanding the performance of exhibitions with the visiting public (YALLOWITZ; BRONNENKANT, 2009).

Understanding the movement and interaction of visitors in exhibitions is of paramount importance for professionals who work in museums, such as designers and curators. This information allows for measuring the success of the organization performed and identifying which components are being used and/or contemplated and which are not, as well as whether the exposure has good flow and whether the desired involvement (YALLOWITZ; BRONNEKANT, 2009).

Thus, formless to s and new theoretical conceptions, strategies were adopted to make the observation of visitors efficient, to add veracity of the data consistent with the understanding of the experience of visitors and in the identification of improvements that could be applied to develop the educational impacts in the exhibitions (ALMEIDA, 2012).

In more recent times, observing visitors refers more specifically to recording, in detail, not only where visitors go, but also what visitors do while inside an exhibition. This can provide quantitative data regarding on-call times, as well as other behavioral data (YALOWITZ; BRONNENKANT, 2009, p. 48).

Some institutions report that they have changed their attitudes towards the evaluation of exposures as evaluators have begun to engage in more participatory approaches. Many professionals mention that having data is important for making decisions (ADAMS, 2015). However, professionals have some frustration because it is not easy to access the results of the evaluations that others perform, which could help them in their practice (ADAMS, 2015).

Consequently, the value of the information resulting from the evaluations in museological exhibitions became a valuable point to influence its performance, echo nomia and recognition. Sendo, currently the incentive on evaluations is essential for innovative approaches to be planned and executed in exhibitions.

2.1 CONCEPTION AND VARIABLES ON EXHIBITION OBSERVATION

Aware that evaluations in exhibitions can significantly help the museum institutions, it will be explained, briefly, evaluation models and essential variables to be analyzed. In this sense, the evaluation is a process to obtain information about the behavior of the visitor, his interests or the communication capacity of the exhibition, and can generate data that contribute to the effectiveness of an exhibition and its interpretative components (SCREVEN, 1990).

After each stage of development of the exhibition, the evaluators should pay attention to different objectives and methods to identify positive and negative aspects in a given stage of exposure, therefore, different evaluative approaches can be performed.

Screven (1990) presents four evaluation models, which are suggested for certain stages of the exhibition, these models are: (1) *Front-end evaluation* occurs in the process of planning the exhibition, before its design; (2) *Formative Evaluation* takes place at the project stage and provides information about the public's reaction to panels, texts, exhibitions, formats, etc. and their performance in generating effort and focus of the visitor, and the communication capacity of the exhibition; (3) *Suvenative Assessment* occurs after the opening of the exhibition and aims to provide information about the operation of the exhibition, how people use and learn from it or are altered by it; (4) *Critical evaluation* of the exhibition is performed by experts before (or after) the smoaactive evaluation with visitors. If done before, the experts carry out the criticisms in order to identify problems in the exposure that require correction, without the

requirement of evaluation; (5) Corrective Assessment applies in exposures when efforts are made to improve in the short or long term the behavior, affective or effectiveness of its teaching after occupation.

There is a need to understand the variables that can influence the results of the observation performed in certain contexts, in each museal institution. There are several variables that can be considered and recorded, and are included according to the objectives and goals to be researched, with the available socioeconomic resources, with variables and data considered in previous studies and with the techniques of evaluators and/or researchers (YALOWITZ; BRONNENKANT, 2009).

For this study, the approach developed was the *Timing and Tracking model*, which presupposes analyzing several variables related to visitor conduct and exhibition design. Yalowitz and Bronnenkant (2009) report 4 categories of variables that frame factors related to visitor behavior, demographics, time, sociocultural contexts and other situations. These categories are: interruptionomporizations, other behaviors, observable demographic variables and situational variables.

The interruption behaviors refer to the most important observable points on the visitor's titude in the exhibition. As this is moved, when the timeremains its attention in a given collection, the number of stops and its level of engajamento throughout the exhibition, the possibility of downtime (if the individual performs actions of non-appreciation to the exhibition, such as mobile phone use or dialogues not related to the museum) are determinant in this stage. And summing up these variables is paramount *for the Timing and Tracking study*, as it is the key to understanding the performance of the exhibition (YALOWITZ; BRONNENKANT, 2009).

Then there are other behaviors, which are related to the interaction of the visitor with the museum exhibition and with other individuals. However, interactions with people from the group, other visitors or employees of the institution are observed, as well as the route that the visitor travels in space, and the use of interactive and/or audiovisual elements (YALOWITZ; BRONNENKANT, 2009).

Among the important studies to be related to *Timing and Tracking*, is the developed by Bigman (1956) on research with visitors to evaluate the effectiveness of exhibitions. Also, especially the studies by Goins and Griffenhagen (1957) and Peart (1984), which use the *concepts of Attracting Power and Holding Power*, which describe the ability that an element of the exhibition has to attract and maintain the visitor's attention for a certain period of time.

According to the observation, *Attracting Power* is a variable that can be recorded from the finding of how many people are attracted to a given exhibition, or collection, and stop to observe. However, it is important to define the conception of stop to be considered, because visitors can carefully observe an item without stopping, as well as they can stop in front of the item and not pay attention to it (BLUD, 1988). For Serrell (1998,) the stop of a visitor is considered when it is before a collection, with two feet planted and with the attention noticeable in the look at the item in question, in a period of time of 3 seconds or more. Neste study, by guarantee, consider or 10 seconds or more for each stop at the exhibitions.

The *Holding Power* in the exhibitions is recorded from the observation of how long visitors remain in a certain area or before specific collection in the exhibition. This variable was considered as the total number of minutes and seconds that the visitor remains yielding to his attention in each exhibition space (SCREVEN, 1974).

In addition to these concepts, many exhibition evaluation studies are carried out and specified according to their objectives. *Timing and Tracking helps* in the perception of the basic points to be examined, however, there are also two more categories of variables that are relative in each region of the world, and may or may not influence the performance of the research, being the demographic variables observable and the situational variables (YALOWITZ; BRONNENKANT, 2009).

The observed demographic variables are similar to the profile of visitors, such as age, gender and number of adults and children in the group, and may also, in more detailed research, aggregate economic data, schooling, etc. And the situational variables are related to the specific contexts of each institution in its region, such as month or season, day and time, agglomeration levels, events in progress in the museum or within the exhibition, presence of employees and others (YALOWITZ; BRONNENKANT, 2009).

In the search to pay to so many variables, the work of the evaluator/data collector becomes delicate, because the observation must be accurate and dynamic, in order to efficiently understand the performance of the exposure. Therefore, it is important to note that usually a visitor from each group is selected for observation, because depending on the exposure, it is not uncommon for groups to divide at various times, so the focus should be on a visitor (YALOWITZ; BRONNENKANT, 2009).

However, despite the effort to consider the numerous variables, there are some difficulties that can affect the studies, both related to observation and to the methods of analysis, impairing the veracity of the data.

The difficulties faced by the use of observation are related to the need for qualified personnel, time for research, a possible embarrassment of the visitor (usually recommended to abort the observation when the visitor feels uncomfortable) and invasion of their privacy (even if consented) and the inaccuracy in data collection (for example, if a visitor actually looked and observed a work or if he was in front of it without paying attention to it) (ALMEIDA, 2012).

Although there is, in many cases, no legal obligation to signal to visitors about the occurrence of observations, due to ethical factors, many researchers still do so. Therefore, there is the request for permission directly or the insertion of signs and notices about the observation of the public in a given period, although there is no guarantee to which visitors understand or perceive the observation (GUTWILL, 2002, 2003).

There are several ways to work the *Timing and Tracking study model*, whether or not to informing visitors about the occurrence of observations. However, it is essential to have legal into the right to have legal into privacy and public safety at local and regional level before direct observation is made in public

environments (YALOWITZ; BRONNENKANT, 2009). In this study, tourists/visitors were informed that they would be observed at the entrance of the exhibitions.

Another factor that can cause controversy in the observation is the so-called " Museal Fatigue", which, because it is unexpected, depending on the visitor, can hinder data collection.

Robinson (1928) discusses the use of the term 'fatigue' that is commonly used for the observed phenomenon, and for its explanation. In this sense, he states that there are different forms of fatigue, such as physics, for walking a lot, looking too much; or mental, for having to process a lot of information. Factors such as the total number of works in the rooms, the way they are exposed could interfere with ' museal fatigue ' (ALMEIDA, 2012).

Therefore, the observation of many cases of museal fatigue in an exhibition should be an indicator that the organization of the collections, the texts, or even the theme should be reviewed. Therefore, there are several factors that should be taken into account, depending on the context of the exposure and the region it is in, according to the variables presented.

Moreover, this study corroborates the research conducted by Campos, Costa e Silva (2021) in these museums, which has data related to the experience, motivation and perception of tourists/visitors. This research showed that most visitors and tourists were motivated by the search for new experiences, interests and curiosity in knowing museums. His visitation expectations were related, especially history and culture (CAMPOS; COAST; SILVA, 2021).

As for the perception of museums, tourists/visitors noticed that the exhibitions were well organized, the interpretive media helped in understanding the exhibitions, the available information clarified what was being exposed (CAMPOS; COAST; SILVA, 2021). Also, consigave the atmosphere of the museums pleasant in favoring the visit, which, according to Falk and Dierking (2000), indicates the importance of the physical context of the exhibition. However, it was pointed out the need for innovation in the media, better visualization of texts and the presence of mediator (CAMPOS; COAST; SILVA, 2021).

However, the study by Campos, Costa e Silva (2021) performed analysis after the visit, through questionnaires and interviews with tourists/visitors, which differs from the observation, which should be performed while the visitor goes through the exhibitions.

This study considers the orientation of the theorists mentioned above in the conception of a sufficiently acceptable methodology, to acquire accurate data on observation in the exhibitions of the chosen museums as a focus of t and study, being them, the Museum of Sacred Art and the Museum of the Fort of the Nativity Scene.

3 MUSEUMS OF SACRED ART AND THE NATIVITY SCENE FORT

The museums selected as objects of this study were the Museum of Sacred Art and the Museum of the Fort of the Nativity Scene, which are located in the Historic Center, neighborhood of the Old Town in Belém, the initial nucleus of the city. These museums were created from the intervention carried out by the

Feliz Lusitânia project that took place from 1997 to 2002. It is emphasized that all spaces that underwent intervention by the project were adapted to museum use (COSTA; MIRANDA, 2020; COAST, 2007).

The buildings of the former Episcopal Palace (Jesuit College) and the Church of St. Alexander were listed by the National Institute of Historical and Artistic Heritage (IPHAN) in 1962 and currently house the Museum of Sacred Art (MAS). Therefore, it is the result of the first stage of the Feliz Lusitania Project, completed and inaugurated in 1998 (LONGO, 2007).

First, for a better understanding of how the Church of St. Alexander and the former Episcopal Palace underwent restoration and adaptation for museum use, it is important to present some events of the past.

Around 1698, the construction of the current church of St. Alexander began, being built in stone, with its inauguration in March 1719, consecrated to St. Francis Xavier, and was later called St. Alexander. Thus, the Church of St. Alexander and the former Episcopal Palace, through the Feliz Lusitania Project, were restored and readapted to house the Museum of Sacred Art, with a collection of more than 350 pieces, and among them are, imaginary, silverware, canvases, liturgical and archaeological objects.

Later, during the Feliz Lusitania Project, more specifically in the years 2000 to 2002 that comprised the third stage of the Project, then occurred the restoration of the Nativity Scene Fort, previously called Castelo Fort that resulted in its transformation into a museum (COSTA, 2007). Like the MAS, the Castle Fort became a historical heritage listed by IPHAN in 1962, which currently houses the Nativity Scene Fort Museum.

Historiographically the foundation of Belém is associated with the construction of the Fort of the Nativity Scene, erected at the first moment in wood and straw cover, after the arrival of Francisco Caldeira Castelo Branco in 1616, to protect the area from possible invasions of other European peoples (LOPES, 2011; LONGO, 2007; PIMENTEL, 2017).

According to Longo (2007) the restoration of the Fort was initiated from archaeological prospects that were of great contribution with regard to the definition of the revitalization project. Lopes (2011) highlights the archaeological work developed in the Feliz Lusitania Project, especially in the Nativity Scene Fort, as a factor of eminent relevance to the results achieved. The excavations culminated in the discovery of about 70,000 archaeological fragments, among them were indigenous artifacts, fragments of swords and ceramics, porcelain pipe, foundations of previous works, stone ramps, trucks, gunpowder house and other materials for use by the army (LONGO, 2007).

With regard to the exhibition present at the Museum of the Fort of the Nativity Scene, Pimentel (2017) describes the environment reporting that on one side of the exhibition are presented the indigenous artifacts, where in the first showcases it is possible to observe objects of the Marajoara and Tapajônica culture. On the other side of the exhibition hall are objects of the colonizers "such as fragments of porcelain, glass bottles, buttons of military uniforms, armaments that belonged to the army and were found during the period of restoration" (PIMENTEL, 2017, p. 9).

Currently, the Nativity Scene Fort presents both a material appreciation and a symbolic appreciation for being considered a founding landmark of the city (COSTA, 2007). Likewise, the Nativity Scene Fort Museum "reconstructs and preserves the historical memory of the meeting between Indians and Portuguese, a period of foundation and colonization of the city of Belém do Pará" (PIMENTEL, 2017, p. 11). Moreover, as Fonseca *et al.* declares. (2015), the Fort of the Nativity Scene shows great importance for the current tourist panorama, since it is a place frequently visited by students and tourists, both national and foreign.

Therefore, the patrimonial and historical value of the buildings that today house the Museum of Sacred Art and the Museum of the Fort of the Nativity Scene is extremely important for the region, capable of presenting to the public the possibility of remembering the past through the information available in the space, in the pieces on display and even by the buildings themselves, that also bring traces of what they were in the past, providing a high-quality immersive experience

4 METHODOLOGY

Timing and *Tracking* (YALLOWITZ; BRONNENKANT, 2009), as well as the design of *Attracting Power and Holding Power* (GOINS; GRIFFEHAGEN, 1957), to evaluate interaction and behavior.

R, field research was conducted using *direta* observation, because, according to Nelson and Cohn (2015, p. 30) "the specificity of structured observation used in the *museum field is time and tracking (Timing and Tracking)*. Time and tracking are useful for studying the natural movements and interactions of the visitors in exhibitions," as in providing a holistic view of what occurs during a program or with the audience interacting with a museum product (NELSON; COHN, 2015).

From Nelson and Cohn (2015), to assist the observation technique, forms are used, "which are groups of questions annotated by an interviewer in a face-to-face situation with another person" (FARIAS; ARRUDA, 2014, p.117). 150 forms were found for tourists /visitors in each museum, chosen at random during the period from 1 May 2022 to 15 July 2022.

The forms were used to obtain data on demographic variables (gender and age group) and also data regarding interruption behaviors (total time in each area of the exhibitions, downtime, total time in museums), number of stops, most observed collection, collection that drew more attention and other behaviors (interaction with people from the same group, with other visitors, with museum employees, with elements of the exhibition and audiovisual resources). Next, we get sketches of the exhibits on the form to assist in the *Timing and Tracking* of tourists/visitors.

A visit simulation was carried out to map the collections and record the facilities of the exhibition spaces, as well as to demarcating the minimum number of stops necessary to satisfactorily observe all the collections in each exhibition area (YALLOWITZ; BRONNENKANT, 2009). Thus, the following minimum number of stops was defined: in the MAS, the areas A and B 20 stops and in area C 14 stops; in the MFP, the stops in areas A, B and C were respectively 13, 17 and 5.

Thus, the context of the exhibitions was understood, as well as the indicative routes suggested by the museums, sending to signal areas of content of the exhibitions in the sketches. To understand the analysis in campo, the results were considered categories and the variables of the *theory Timing and Tracking* of Yalowitz and Bronnenkant (2009).

5 RESULTS AND DISCUSSION

5.1 STRUCTURE OF MUSEUMS AND EXHIBITION CONTENT

A) Museum of Sacred Art

The Museum of Sacred Art has a whole 4 spaces with different exhibitions, but all related to the sacred art of the state of Pará and the Amazon, these spaces being, respectively: the Igreja of Santo Alexandre, the Emporium of arts, the Fidanza Gallery and the permanent exhibition (on the 1st floor, which was the main focus of research in the museum).

The permanent exhibition brings together an extensive collection of sacred art, distributed in specific areas. In this exhibition the tourist/visitor enters Area 3 (called C), which has some statues such as Our Lady of The Piedade and St. Francis Xavier, a stained glass window, a variety of texts about the churches of the region and the Jesuit and Carmelite deeds, wooden dolls and the view of the church choir.

Next there are two possible paths, Area 1 on the right (named A) and Area 2 on the left (named B). In Area A, there is an extensive corridor that has two statuettes of Our Lady, pinturas such as "the Holy Supper", "Our Lady of Cervello" and the "Calvary", and 2 medallions, besides having a room with panels (6 in all) with a variety of statuettes of saints and saints, 2 texts ("Imaginary Brazilian" and "imaginary Jesuit"), 1 oratory, a large statue of Jesus crucified next to wooden-carved tocheiros angels, and a statue lying of the dead lord.

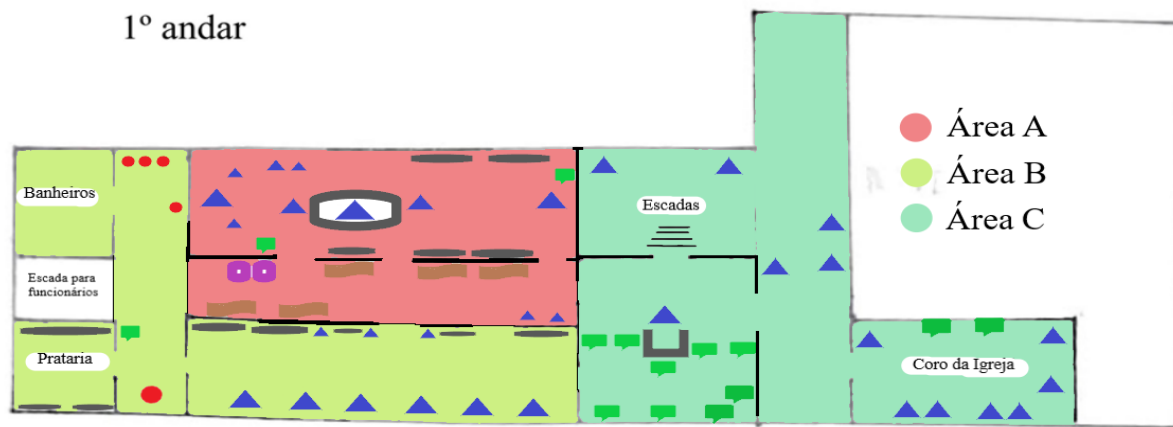
Then, in Area B, there is a corridor with 6 statues of saints, such as St. Joseph of Boots, St. Anthony, Our Lady of Conception etc. panels with several figurines (5 panels in all), one pawn, 5 processional lanterns, bathrooms, and silverware (which contains several liturgical objects, crowns, chalices, ostentatious/custodians etc.). It was also observed the performance of mediators in the exhibitions, which perform both the reception in the church, and guide in the permanent exhibition. The sketches in figures 1 and 2 detail the floor plans of the Museum of Sacred Art.

Figure 1: Plant sketches of the Museum of Sacred Art (Ground Floor), with indication of collections.



Source: Authors (2022)

Figure 2: Plant sketches of the Sacra Art Museum (1st Floor), with indication of collections.



Source: Authors (2022)

B) Nativity Scene Museum

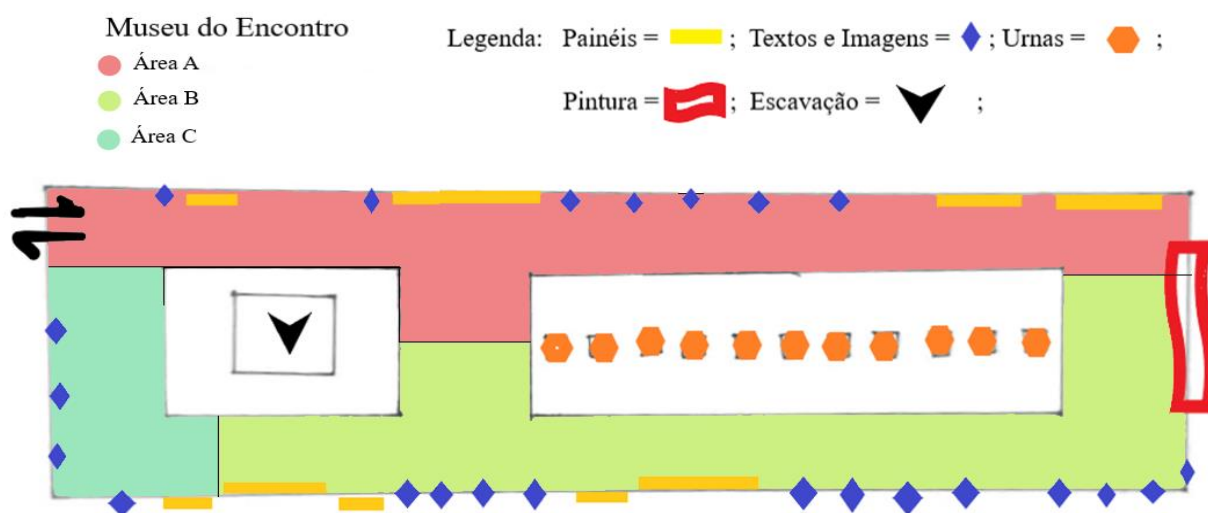
The Museum of the Fort of the Nativity Scene, also called the "museum of the meeting", is located in the Guaimiaba room, right at the entrance of the Nativity Scene Fort after the ticket office. The visitor can observe when entering the room, on the left side, a small map that presents all the collection arranged and the suggested route for visitation, with the theme of the progression of peoples in the Amazon until contact with the Portuguese. Therefore, according to the chronological suggestion, 3 areas that have specific collections to the themewere highlighted (see Fig.3).

Area A is composed of items related to the culture of the ancient native peoples of the Amazon, with more emphasis on marajoaras and tapaions, therefore, one can find ceramics and figurines, as well as funeral urns, muiiraquitã, and polished stones used as axe blades and various texts and panels explaining about the history of peoples, as well as functions and iconography in the pieces. Also, at the beginning of the area, a stratigraphic cut containing traces of a campfire with some fosseis is presented (see Fig.3).

In area B, the composition of pieces highlights the contact of the natives with the Lusitanians, as well as the colonization in the Amazonian territory, being presented the perspective of the Portuguese on these peoples, as an example, the Tupinambás are mentioned in the first texts. There are also panels containing traces of weapon parts, bullets, buttons, coins, pipes, crockery, stoneware and miscellany found from the 18th century (see Fig.3).

And finally, in area C, there is a small space that denotes the context of indigenous peoples in the contemporary, presenting a text, some photographs in village, and some masks and accessories of the Tikuna ethnicgroup, used in rites.

Figure 3: Croquis of plan of the museum of the Fort of the Nativity Scene, with indication of collections.



Fontand: Authors (2022)

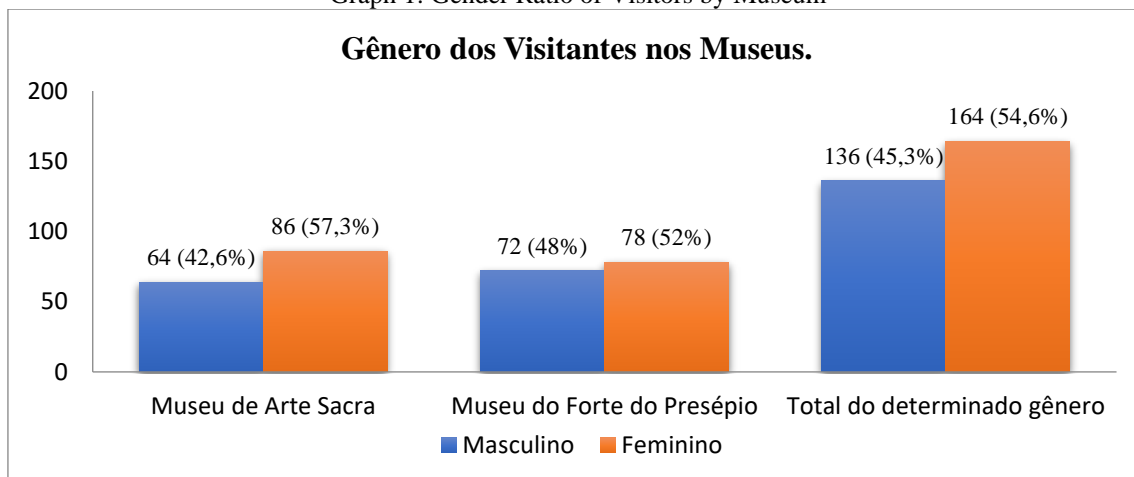
5.2 DATA OBTAINED FROM *TIMING AND TRACKING OBSERVATION*

A) Demographics

Demographic variables (YALLOWITZ; BRONNENKANT, 2009) of this pesquisa are only in the gender and age group of tourists/visitors, taking into account that only one tourist/visitor was selected to be observed at a time. Thus, it was found that, of the 300 observed in both museums, 142 were tourists (47.3%), and 158 local visitors (52.6%).

In all, 136 male and 164 female visitors were observed, with the greater presence of female tourists/visitors being noticeable in both museums. Thus, the female participation in the Museum of Sacred Art was 57.3% and in the Museum of the Fort of the Nativity Scene 52%, according to graph 1.

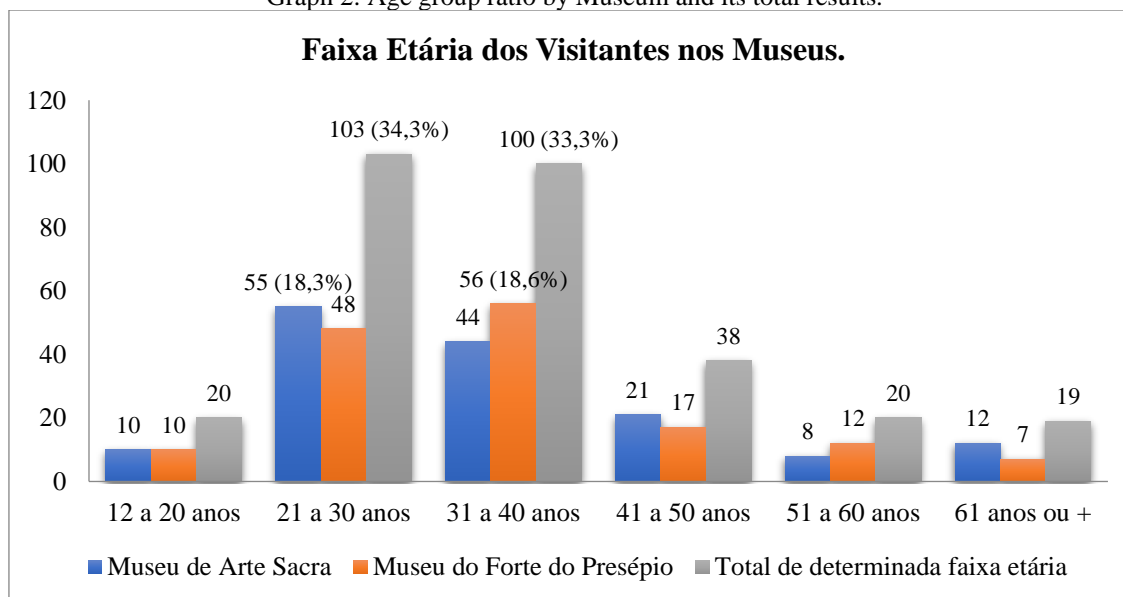
Graph 1: Gender Ratio of Visitors by Museum



Source: Authors (2022)

Regarding age, there was a higher share of individuals aged 21 to 30 years (18.3%) at the Museum of Sacred Art (MAS), while in the Museum of the Fort of the Nativity Scene (MFP) there was a higher experience of visitors aged 31 to 40 years (18.6%). It is possible to increase the involvement of people aged 21 to 40 years in both museums, which were 67.6% of those observed in the overall total (see graph 2).

Graph 2: Age group ratio by Museum and its total results.



Source: Authors (2022)

B) *Timing and Tracking*

As one of the main focuses of the research was to understand the time of visitors in each exhibition in museums, a detailed work was carried out, and with the help of chronometers and annotations, the times in each area (A, B and C demarcated in the sketches) were obtained, downtime and the total time of visitors in each museum.

It was observed that in the permanent exhibition of the Museum of Sacred Art, the average times that visitors had in areas B and C are practically the same (see Chart 1). In all areas A of the exposure, the

average time spent is 27% lower compared to s areas B and C (see Chart 1). Downtime was usually caused by the use of mobile phones to take photographs, answer messages and make calls. The total time in the Museum of Sacred Art (MAS) was composed both by the visit in the permanent exhibition that was selected for research, as well as by the time in the other spaces of the complex, such as the church, the Firenze Gallery and the Emporium of the Arts. It can be considered that on average the stay of tourists /visitors was 16 minutes and 31 seconds in the permanent exhibition, which is equivalent to 51.8% of the total time visiting the MAS.

Table 1: Totals and averages of visit time recorded in the areas of mas exposure.

Museum of Sacred Art	Total observation time	Average time in min.
Area A	10 o'clock 58 min. and 11 sec.	04:23
Area B	10:00 9 a.m. and 55 secs.	06:04
Area C	15 hours 10 min. and 43 secs.	06:04
Downtime	3 hours 15 min and 47 secs.	01:18
Total time in MAS	82 hours 6 min. and 9 secs.	31:50

Source: Authors (2022)

In the Nativity Scene Museum, it is noted that the average time of area B (44.7% of the total time average) is outnumbered (see Chart 2), indicating a longer retention time of visitors in this region of the exhibition. Area C had the lowest average time value, because it is the smallest area and has fewer collections compared to the other ones. Downtime was again caused, most of the time, by the use of the cell phone.

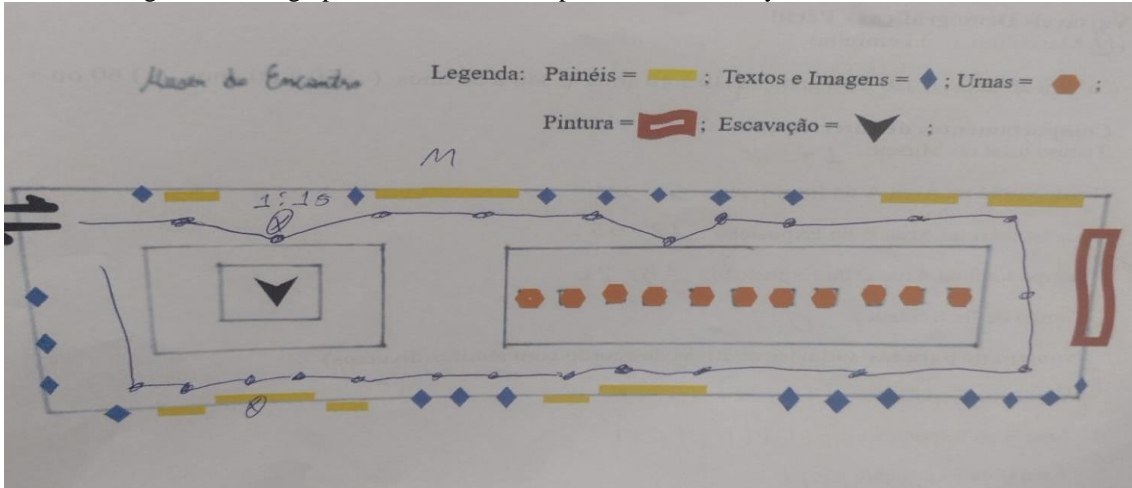
Table 2: Total and average visit time recorded in the areas of the MFP exposure.

Nativity Scene Museum	Total observation time	Average time in Min.
Area A	2:57 p.m. and 39secs.	05:59
Area B	16 hours and 6 seconds	06:24
Area C	3 hours 17 min. and 7 secs.	01:18
Downtime	1 hour 22 min. and 34 secs.	00:33
Total Time in MFP	35 hours 46 min. and 33 sec.	14:18

Source: Authors (2022)

After these results on the time averages, the average number of stops was recorded in the exposições, to perform the discussion in relation to *Timing and Tracking*. Through observation, the routes of the visitors were marked, as well as the points that stopped during the visits. For this, the sketches were used, the records of the points that caught the most attention and those that the visitors observed for the longest, the so-called *hotspots*. Below in figures 3 and 4, there are examples of marking in the sketches of both museums.

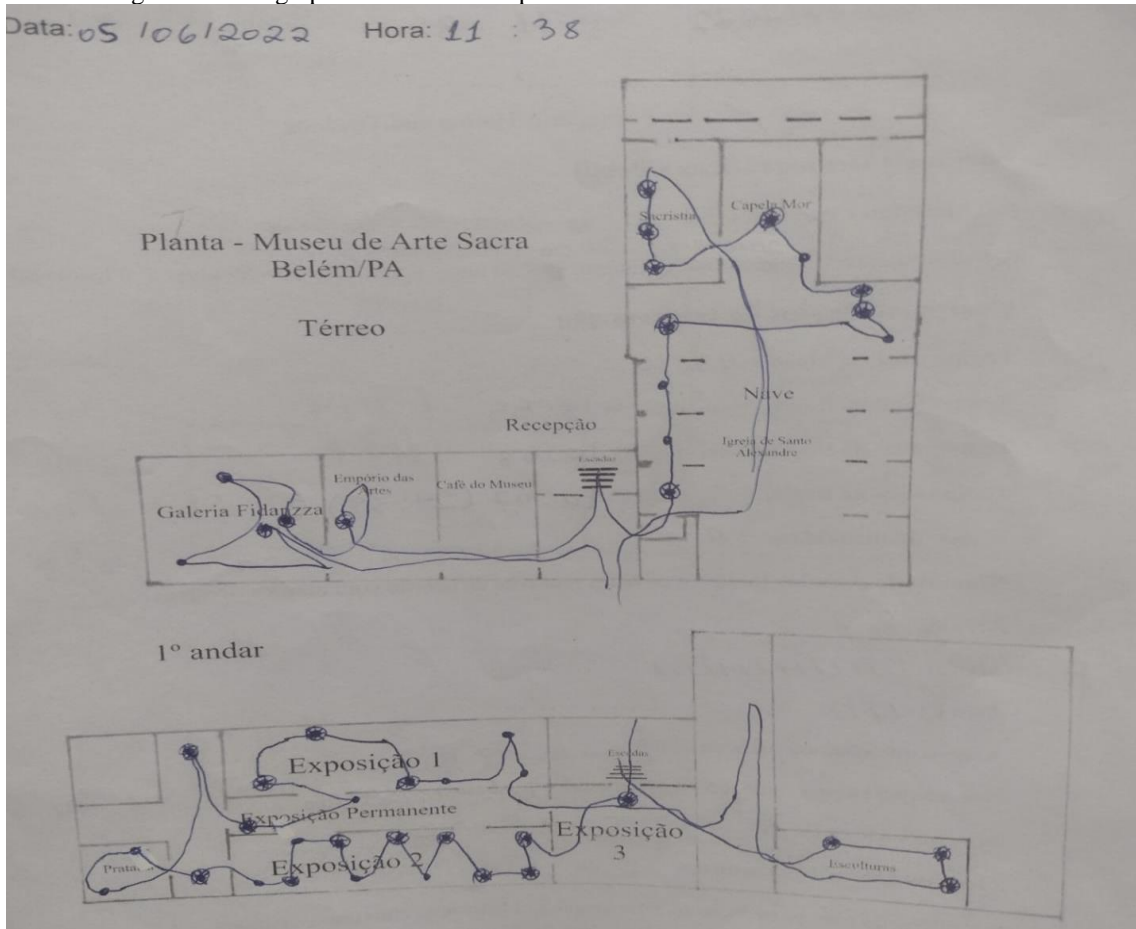
Figure 3: Photograph of the Sketchs completed inthe Nativity Scene Museum Form.



Source: Authors (2022)

It is worth noting that hotspots with¹ X markings were considered, as stops of 30 seconds or more, for a this case, it is only a ball, which is equivalent to the minimum 10 seconds. Thus, the number of stops was obtained in each area of the exhibitions in the museums. Andntretanto, in the case of MAS, consider or only the stops on the 1st floor, in the permanent exhibition, because it contains the main collections of the museum and to delimitaspace and specific to analyzethe variables of observation in the museum.

Figure 4: Photograph of Sketches completed in the Form of the Museum of Sacred Art.



Source: Authors (2022)

¹ In BUT obtained 847 hotspots and in the MFP there was 452 hotspots in total.

No, MAS averaged stops below the minimum half to be considered in each area. In area A, the average 7.07 stops of a minimum of 20 for complete reasonable observation of the collections, which is not the low degree of *Attracting Power* (GOINS; GRIFFEHAGEN, 1957), the same can be inferred over the other areas, with B with an average of 10 stops for a minimum of 20 stops, and area C with an average of 6.28 for a minimum of 14 stops (see Chart 3).

Although the tourists/visitors remained for a certain time in the exhibition, they lost interest in observing some of the collections due to museal fatigue, and in this museum were recorded 8 (5.3%) cases of museal fatigue (ROBINSON, 1928).

Table 3: Total and average stops recorded in visits to the Museum of Sacred Art.

Museum of Sacred Art	Total stops	Average stops	Minimum number of stops to observe collections in each Area (according to the sketches, location of the collections and simulation of visit)
Area A	1061	7,07	20
Area B	1500	10	20
Area C	942	6,28	14

Source: Authors (2022)

However, in the MFP the average of stops in each area reached reasonable results. In area A, the average of 8.33 stops for a minimum of 13 stops in this area; in area B the average of 8.85 stops for a minimum of 17 stops and in area C, the average of 2.18 stops to a minimum of 5 (see Chart 4). In this museum, 23 (15.3%) cases of museal fatigue (ROBINSON, 1928) were recorded.

Table 4: Total and average stops recorded in visits at the Nativity Scene Museum.

Nativity Scene Museum	Total stops	Average stops	Minimum number of stops to observe collections in each Area (according to the sketches, location of the collections and simulation of visit)
Area A	1250	8,33	13
Area B	1328	8,85	17
Area C	327	2,18	5

Source: Authors (2022)

Although MFP achieves a more positive result of number of stops, it is important to take into account that visits in the permanent exhibition of MAS usually occur after visiting in the church area. However, although the exhibition space in the MFP is smaller than the MAS exhibition space and has more collection, there were more cases of museal fatigue (ROBINSON, 1928) in the MFP than in the MAS, which indicates insufficient *Holding Power* (GOINS; GRIFFEHAGEN, 1957) to keep the visitor in the exhibition of the Museu do Encontro.

Researcher the collections that drew the most attention and those that had the most time for observation in each museum. This issue was important to understand the *Attracting Power and Holding Power* that the collections have, which influenced the results of the *Timing and Tracking* (GOINS) method; GRIFFEHAGEN, 1957).

Thus, tanto através of observation, whenafterthe visit when questioning tourists/ visitors, to confirmwhich object of the collection was elected as the most observed and what mais drew attention. NoMAS obtained 150 responses from tourists/visitors. The Dead Lord, which is a polychrome carved wood sculpture, was elected 21 times by tourists/visitors, and many described it as "sinister" or "very real", emphasizing *Attracting Power* (GOINS; GRIFFEHAGEN, 1957) dthat object. The second object that drew most attention, with 15 confirmations, was the Custody for the 6th Eucharistic Congress in Bethlehem (1950), which is a liturgical object, and has in its composition, silver, gold and precious jewels, being found in area B, and third was Our Lady of Piety, which is a sculpture of polychrome wood, which is found at the entrance to area C, when climbing the stairs (see Table 5).

The collection observed for longer by tourists/visitors in MAS was custody (16 confirmations), followed by paintings of the Holy Supper and Our Lady of Cervello (with 12 confirmations each), both found in the corridor of area A, being the "Holy Supper" most considered by tourists / visitors (See Chart 5).

Table 5: List of the collections that drew the most attention and those observed longer in the MAS.

Museum of Sacred Art			
That Drew The Most Attention	1st Place	2nd Place	3rd Place
	Dead Lord	Custody for iv Eucharistic Congress in Bethlehem (1950)	Our Lady of Piety
	21 (14%)	15 (10%)	15 (10%)
More Time Observed	1st Place	2nd Place	3rd Place
	Custody for iv Eucharistic Congress in Bethlehem (1950)	Painting Santa Ceia	Painting Our Lady of Cervello
	16 (10.60%)	12 (8%)	(8%)

Source: Authors (2022)

In relation to the collections of MFP, todavia, when considering the objects that were most observed, the btesaw 137 responses from tourists/visitors, because in 13 observations it was not possible to collect this time, due to lack of electricity, and due in some cases, the tourist /visitor take the same tempo observing 2 collections or more.

In the MFP, what most caught the attention of tourists / visitors ramthe Marajoaras Urns (40 confirmations) being in all 11 urns distributed in the middle of the exhibition, seguido by the p intura "Conquest of the Amazon River" (12 confirmations), which is located in area B of the exhibition, and the panel on ceramic marajoara (11 confirmations), located in area A of the which also addresses sociocultural aspects of ethnicity (see Table 6).

Although dand urnas draw more attention, the texts kept tourists/visitors for longer observing some of the areas of the exhibition, such as the textos over the Tupinambás (25 confirmations), located in area B, which described the customs and contact of the Portuguese with the natives in the 17th century, s eguido by the panel of Ceramic marajoara (23 confirmations) and the panel of bullets, mechanisms and weapons (22 confirmations), located in area B of the exhibition (see Table 6).

Table 6: List of the collections that drew the most attention and those observed the longest in the MFP

Nativity Scene Museum			
That Drew The Most Attention	1st Place	2nd Place	3rd Place
	Marajoaras Urns	Painting "Conquest of the Amazon River"	Marajoara Ceramic Panel
	40 (29.19%)	12 (8.75%)	11 (8.02%)
More Time Observed	1st Place	2nd Place	3rd Place
	Texts on Tupinambás	Marajoara Ceramic Panel	Panel of bullets, mechanisms and weapons.
	25 (18.24%)	23 (16.78%)	22 (16.05%)

Source: Authors (2022)

THE MAS has much of its collection in its permanent exhibition, it is understandable that tourists / visitors remained considerable time in the exhibition. Contudo, when relating the average number of stops with the minimum number of stops required to observe the collections, it is perceived that *the Attraction Power* (GOINS; GRIFFEHAGEN, 1957) of most of the collection is not enough to generate more stops,

thus holding *power* (GOINS; GRIFFEHAGEN, 1957) of this exhibition remains in a regular result, according to the time in the exhibition.

In the MFP the situation was different, because the average number of stops exceeded half of the minimum number of stops required to observe the collections (except in area C), and for the average time calculated, the exposure performance is good. However, it is worth noting that although d and area B retain tourists/visitors longer, emphasizing *Holding Power* (GOINS; GRIFFEHAGEN, 1957) nthis part of the exhibition, tourists/visitors had their attention focused, in most cases, on artifacts of marajoara culture, such as urns and panels, indicating *Attracting Power* (GOINS; GRIFFEHAGEN, 1957), by exhibition area A.

C) Other Behaviors

It was also observed the behavior oftourists/visitors, in view of the exhibition and people from the same group or not. Thus, 4 options were separated, indicating and recording this contact throughout the exposure.

These indicators werenumerated from 1 to 4, and represent respectively: (1), interaction with people from the same group, where there is dialogue and/or signs between individuals; (2) interaction with another visitor; (3) interaction with employee, where there was mediation or guidance in the exhibition (except contact at the entrance of museums); (4) interaction with elements of the exhibition and audiovisual resources, where there was at least 50% of reading texts and attentive observation by the visitor in the exhibition; and (0) that represents none of the previous indicators.

Based on the interaction indicatorsmentioned, it was recorded through the sums of the total occurrence of indicator 3, that in the MAS, there was mediation and orientation with tourists/visitors 70.6% (105) of the times, and that 91.9% (137) of the visits were in a group, where there was contact between the participants during the visit in the permanent exhibition, perceived by the sum of occurrence of indicator 1 . However, in only 1 case (0.6%) a visitor had contact with another visitor. In addition to the occurrence of indicator 4, it is perceived that, in 98% (147) of the visits, there was reading texts and attentive observation of visitors in 50% of the items of the exhibition, revealing reasonableness *in Attracting Power and Holding Power* (GOINS; GRIFFEHAGEN, 1957) in the contents of the MAS.

In the MFP, it is noted that 87.1% (131) of the visits were in groups, where there was interaction between them, only 1 case (0.6%) in which there was interaction with another visitor. Also, 92.4% (138) of the visits were read texts and attentive observation of the collection, from the sum of the totals in which indicator 4 appears, ensuring reasonableness *in attracting power and holding power* (GOINS; GRIFFEHAGEN, 1957) of the contents of the MFP. However, only 23.2% (35) of the visits received some measurement or orientation in the exposure, perceived by the sum of occurrence of indicator 3.

Many tourists/visitors commented on what they learned at the end of the visit, as well as highlighted moments that a collection became more prominent to them, and when they observed for longer the details of a piece and noticed something new (which they did not notice before in a previous visit). There were

also cases of tourists/ visitors who valued the rich content of the exhibitions when visiting for the first time, stating that they would need to come back to know more deeply. Thus, this educational impact observed at the end of the visit, is a *clear portrait of the Attracting Power and Holding Power* (GOINS and GRIFFEHAGEN, 1957) of the exhibitions, which gave basis for understanding this interaction and its results.

However, the most relevant to consider are the data *about the Timing and Tracking survey*, which revealed remarkable data on the behavior of visitors, which may be useful to evidence the communicative potential of the exposures. Understanding how the visitor relates to the available content planned by museologists and curators is essential to classify what areas have an acceptable performance by institutions (YALOWITZ and BRONNENKANT, 2009).

6 FINAL CONSIDERATIONS

Museum evaluation must be a dynamic and flexible process, but structured and controlled, in so as to obtain accurate and assertive data on the context researched. Realizing this, fundamental questions were considered in this research that made it possible to identify relevant points about the interaction with the exposures. *Timing and Tracking research in MAS and MFP* helped to obtain essential data for the notion of the interaction of tourists / visitors with the exhibitions, how they behave and perceive the collections.

Thus, from the data and observations, one can infer about the educational impact of the exhibitions in both museums, in which the attention of the tourist/visitor was positive and rare cases of perceptible museal fatigue, in which the tourist/visitor seemed restless or gave up observing some pieces.

With the results of the average time in each area, the number of stops and interaction indicators obtained from the scripts covered and the mapping of the sketches, the MAS and the MFP can invest in a different approach for the greater permanence of tourists/visitors in areas of the exhibitions pointed out in the research. Therefore, it is suggested the dynamic of texts, use of acoustic guides, videos, *QR Code* with texts and the replacement of some objects by others that hold greater *Attracting Power*, to improve the *Holding Power* of the exhibition areas that did not attract the attention of tourists / visitors and also to increase the average of stops resulting from the research. Because both selected exhibitions are permanent or long-lasting, a summative evaluation may encourage future improvements or changes for greater efficiency of communication of exhibitions with the public.

This research can serve to future studies that use *the data of Timing and Tracking*, to understand more closely this phenomenon that is the visit in museums, its intensity in each individual and effects that can generate. Thus, from the obtained results it is considered that the *Timing and Tracking method* used can be implemented in the evaluations of other museums in the city of Belém do Pará.

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