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**SENSING ANTARCTICA:
SENSORIAL EXHIBIT ON ANTARCTICA AT ESPAÇO DO CONHECIMENTO
UFMG, BRAZIL**

*Fernanda Codevilla Soares*¹*Andres Zarankin*²**ABSTRACT**

Full of superlatives, the Antarctic continent has been represented as the most desert, coldest and wildest location of all places on earth; an apt location for archeology, a discipline often associated with adventure. To reflect on these considerations and critique the traditional ways of presenting Archaeology and Antarctica in science, LEACH-UFMG has proposed an alternative mediation that encourages communication with both. Using exhibits, plays, comic books, sticker albums, among others, the idea is to use the elements that normally make Antarctica and Archaeology interesting for people without, however, oversimplifying. Specifically in this paper we will report an experience that we had at Espaço do Conhecimento UFMG which was a sensorial exhibit, resulting from the collaborative work of Mediantar (Antarctica Medicine), Mycoantar (Antarctica Microbiology) and "White Landscape" (Antarctic Archaeology and Anthropology) projects, all carried out by UFMG. This exhibit called "Antarctic expedition" was on display from December 7th 2017 to May 20th 2018 and was visited by 30573 people.

KEYWORDS: Historical Archeology, Antarctica, Sensory Exhibition, Mediation, Corporeality, Senses.

RESUMO

Recheado de superlativos, o continente antártico é tido como o território mais desértico, frio e selvagem de todos, enquanto a Arqueologia costuma ser associada a um universo de aventuras. Refletindo sobre essas questões - e realizando uma crítica às tradicionais formas de divulgação científica sobre Arqueologia e Antártica – o LEACH-UFMG tem proposto trabalhos que estimulem a comunicação não-direcionada acerca de ambos. Partindo de recursos como exposições, teatros, histórias em quadrinhos, álbuns de figurinhas e outros, a proposta é nos apropriar dos elementos que frequentemente tornam a Arqueologia e a Antártica fascinante para as pessoas, sem, contudo, fazer as simplificações e reducionismos, que esses canais normalmente fazem. De forma específica nesse trabalho,

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iremos relatar a experiência realizada no Espaço do Conhecimento da UFMG, a qual se caracterizou por uma exposição sensorial fruto do trabalho colaborativo entre os projetos Mediantar (Medicina Antártica), Mycoantar (Microbiologia Antártica) e Paisagens em Branco (Arqueologia e Antropologia Antártica) todos sediados na UFMG. A exposição foi denominada “Expedição Antártica” e esteve em exibição entre 07 de dezembro de 2017 e 20 de Maio de 2018 e contou com 30573 visitantes.

PALAVRAS-CHAVES: Arqueologia Histórica, Antártica, Exposição Sensorial, Mediação, Corporalidade, Sentidos

RESUMEN

Poblado de superlativos, el continente antártico es considerado el territorio más desértico, frío y salvaje de todos. Por su parte la Arqueología ha estado asociada a un universo de aventuras. A partir de una reflexión sobre estos dos temas, y criticando las formas tradicionales de divulgación científica sobre Arqueología y Antártida, el LEACH-UFMG viene proponiendo trabajos que estimulan una comunicación mas libre y fluida con el publico. Partiendo de recursos pedagógicos como exposiciones, teatros, cómics, álbumes de figuritas y otros, nuestra idea es apropiarnos de los elementos que vuelven fascinantes la Arqueología y la Antártida, para generar narrativas que dejan de lado simplificaciones y reduccionismos. Específicamente en este trabajo, discutimos una experiencia proyectada como una exhibición sensorial, realizada en el “espacio de Conocimiento” de la UFMG, como resultado de un trabajo colaborativo entre Mediantar (Medicina Antártica), Mycoantar (Microbiología Antártica) y Paisajes Blancos (Arqueología y Antropología antártica), todos estos proyectos sediados en la UFMG. La exposición se llamó "Expedición Antártica" y estuvo abierta entre el 7 de diciembre de 2017 y el 20 de mayo de 2018 y contó con 30573 visitantes.

PALABRAS CLAVE: Arqueología Histórica, Antártida, Exposición Sensorial, Mediación, Corporalidad, Sentidos

INTRODUCTION

Often the subject of movies, photographs, cartoons, comics, toys and other media, Antarctica tends to be presented as an untouched and mysterious place. In such representations, the continent is associated with the color white, in connection with ice, snow, storms and lack of people and vegetation. However, anyone who has had the opportunity to visit Antarctica can notice that white color is not entirely dominant. In fact, one can take in colors and smells and feel textures and histories that, although they are not part of our everyday life, don't mean absence.

One of the characteristics that hasn't been debated about this continent is its late incorporation into the circuits of action, knowledge and human occupation, that started in the end of the 18th century and the beginning of the 19th. The official narratives on this

“encounter” were centered on characters that were considered relevant by official metanarratives, rendering invisible the fundamental participation of subaltern groups, such as whalers and seal hunters (ZARANKIN and SENATORE, 2007, ZARANKIN *et al*, 2011). In part, this historiographical construction is related to the few existing written documents about these workers, who, in general, were produced by ship captains and well-known explorers. On the other hand, these excluding narratives tie into the nationalist interests on the territory, which favor claims of sovereignty over what today is international and protected by the Antarctic Treaty (MADDISON, 2014).

Insofar as archaeology is concerned - understood as a scientific discipline centered on the studies of people from material vestiges (MCGUIRE, 1999) - it offers the possibility of telling alternative stories about the human occupation of Antarctica. Especially for working with the remains of everything that everyone produces and uses - material culture - the archaeological study of Antarctica allows us to rewrite the history of the continent in a more plural and democratic way.

In this way, the Laboratório de Estudos Antárticos em Ciências Humanas (LEACH-UFMG), created in 2008, has developed research whose purpose is to understand human occupation strategies of Antarctica. The lab emerged as the continuation of a project started in Argentina in 1995 and is presently completing 25 years of existence. The research highlights that human presence in the region for some 200 years, and the sealers and whalers were relevant in bringing the last continent into Modern World (ZARANKIN and SENATORE, 2007; ZARANKIN *et al*, 2011).

Using the material culture as the main source of information, so far the project has analyzed worker's clothing (SALERNO, 2006, 2009), their shoes (ALKMIN, 2015), eating habits, including bone vestiges, glass bottles and corks (CRUZ, 2014; SOARES *et al*, 2016, SOARES and GARDIMAN, 2017), hunting activities (NOLASCO, 2018), smoking practices (SOARES, PENA and AMORIM, 2019) among others.

Despite the great potential of Archeology to uncover the stories of excluded groups through materiality (FUNARI, 1999; LIMA, 1999); one of its flaws has been the interlocution with the non-archaeological public. Archaeologists are focused on sharing their research with other archaeologists, but not the wider public. This characteristic is visible in technical texts and publications that are difficult to understand and don't generally elicit interest on the

part of the public, which remains external to the subject. In order to correct this deficit, Public Archeology proposes new forms of communication and interaction with communities, promoting investigations that are relevant to everyone involved in the process, whether they are archaeologists or not (MERRIMAN, 2004; BEZERRA, 2011, 2013; MURTA, 2014).

Having these reflections as a background and thinking about the unique and transforming experience that is research in Antarctica, LEACH has been aligning itself with the proposals of Public Archeology and promoting actions that have the objective of stimulate sensorial entanglement between the people of the present with the things of the austral past (BEZERRA, 2013). In this way, rather than analyzing the human occupation of the frozen continent, we seek to encourage new types of relations with this territory. Using resources such as a sensorial dome, theater, sticker albums, comics, digital media, three-dimensional technology and others; seeking out to strengthen the communication channels between archeologists and non-archeologists, putting into practice the activities that are exciting, significant, symmetrical and less directed (SOARES and MOTA, 2017; SOARES, NOLASCO and MOTA, 2018).

Going further over one of these experiences, we will present here some thoughts and ideas about the "Antarctica Expedition" exhibit, which was motivated by the concerns listed above, and as a key foundation the concepts of agency, mediation, corporeality, sensoriality and interdisciplinarity.

THE "ANTARCTICA EXPEDITION" EXHIBIT

The "Antarctica Expedition" exhibit was carried out by the team of Espaço do Conhecimento UFMG with the collaboration of the Mediantar, Mycoantar and Paisagens em Branco projects, developed at UFMG. The exhibit took place between December 7th, 2017 and May 20th, 2018.

As these 3 projects and Espaço do Conhecimento became closer to each other a common interest emerged in developing an exhibit that would be not only informative (with texts and images that could show the results of the work carried out), but that could also

involve the visitors, taking them along on an expedition to the south end of the planet; experiencing, in a simulated way, life in the most radical continent of the planet.

The Mycoantar project, coordinated by Prof Dr. Luiz Henrique Rosa (current member of INCT Criosfera), is part of microbiology research focusing on the fungi of the Antarctic continent, carried out by the Instituto de Ciências Biológicas at UFMG. The Mediantar project, coordinated by Prof^a Rosa Maria Esteves Arantes, brings together Medicine, Anthropology and Physiology research to analyse the adapting process of the human body under extreme polar conditions, and is also part of the Instituto de Ciências Biológicas of UFMG. In an interdisciplinary effort we are studying the fungi of the Antarctic archaeological collection from LEACH-UFMG with Mycoantar, and we are also volunteer researchers of the physiological studies of the Mediantar team, having therefore been through physical tests when at camp and before going onboard to the Antarctic expeditions.

The “Espaço do Conhecimento” of the UFMG is an exhibition center that brings together culture, science and art. Its goal is to produce diverse knowledge, developing languages that promote content in an innovative and playful way. It was inaugurated on March 21, 2010, as the result of a partnership between the government of the State of Minas Gerais and the Federal University of Minas Gerais (UFMG). Since 2017, it has received financial assistance from Instituto Unimed-BH, through the Federal Law of Incentive to Culture. It is part of the set of cultural spaces and activities of the UFMG Cultural Action Directorate and is part of the “Liberdade Circuit”, currently considered the largest cultural complex in the country (Information available at <https://www.ufmg.br/espacodoconhecimento/>, accessed at June 3, 2020).

The exhibit was created collectively; highlighting what the 3 projects have in common and respecting particularities. It is important to say that the idea of this exposition started with the researchers and took shape because at the behest of the Espaço do Conhecimento team. Thus, the researchers are the curators themselves. In a collaborative way we've built new knowledge about Antarctica and not only "transposed" the content of our projects into the exhibition space.

In a professional and creative way, the team at Espaço do Conhecimento UFMG have enabled a sensorial exhibit about Antarctica. Using immersion, since the facilities were created in a curved shape, eliminating edges and hiding the pillars, which gives the feeling of

vastness, typical of the frozen continent. In this scenario, texts, images, movies and objects were placed in, including, as well, samples of fungi on an entire wall exhibit. The exposition also showed the sounds of the continent in installations that highlighted the sounds of the wind, water and marine animals. Enlarged pictures were used to show landscapes, the fauna, the glaciers and the researches working on the field (MATTOS and SILVA, 2019).

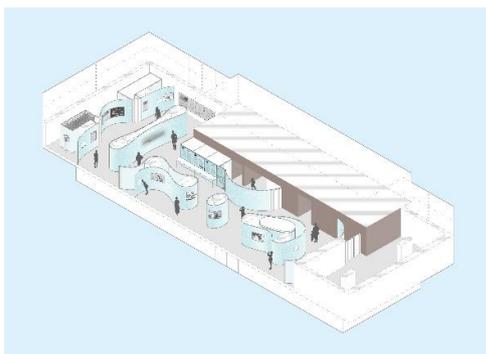


Figure 1. Exhibit Overview

Fonte: Equipe Espaço do Conhecimento, 2019, p.36-37.



Figure 2. Sensory capsule simulating an ice walk.

Fonte: Equipe Espaço Do Conhecimento, 2019, P. 51.



Figure 3. Wall with Antarctic fungi.

Picture: Equipe Espaço Do Conhecimento, 2019, p. 59-60.



Figure 4. Sensory capsule simulating wind and snow.

Picture: Fernanda Codevilla Soares.

In this scenario, a kind of simulation game was created in which the abstraction provided by a map instigated visitors to explore the content through playful enjoyment. The map's name is "Explorer Guide", and it showed different routes where the visitors could find notes, insights and questions. Apart from fungi, the Biology route presented information about Antarctic animals and their food chain. The Medicine route induced the senses of the public, using immersive capsules related with explanation texts. These capsules simulated walking on ice, the darkness of the polar night, its clarity in the summer, wind, cold and snow. The Archaeology route addressed the discussions on the unofficial history of

Antarctica, materialized in the vestiges, their uses and meanings (MATTOS and SILVA, 2019).



Figure 5. “Explorer Guide” Map’s
Picture: Equipe Espaço Do Conhecimento, 2019, p.24-25.



Figure 6. “Explorer Guide” Map’s
Picture: Equipe Espaço Do Conhecimento, 2019, p.24-25.

Before coming to the routes, however, a corridor was created to guide visitors onto the exhibition space. This corridor marked the passage to the South Pole and represented the travel that researchers do on every expedition. The corridor was dark and narrow, on one side of the wall there was information about the instruments that were used by the first explorers, such as the maritime chronometer, the astrolabe, and the sextant. On the other side, on the other wall, panels showed the ships and airplanes that currently make the trips to the Antarctic continent (MATTOS and SILVA, 2019).

Specifically related to the archaeology course, it was decided to that the material vestiges to be highlighted would be those collected at the sealers’ archaeological sites. In this way, the materials were sorted out in niches in order to suggest social practices and not only to their formats, raw-materials or dating.

In the leisure area, a square or rectangular glass bottles, a kaolin pipe, a metal pipe and a board game with chips were displayed. The bottle is dated between 1750-1850 through the manufacturing brands existing in its body, base and bore, and the kaolin pipe has its manufacturing period between 1820-1840 based on a detail on the raised design in front of bowl. According to a microbiology study made inside the bottle, it had distilled drinks, such as: rum, gin or whisky, that were drunk as spirits. The pipes have vestiges of tobacco that were, usually, smoked during sealers’ rest time or working hours. The boarding game and the chips, possibly checkers, were made by the groups of sealers themselves when they landed in Antarctica, using pieces of wood brought from the ship. The boarding game was

used at times of rest or waiting, when the weather conditions prevented sealers from hunting.

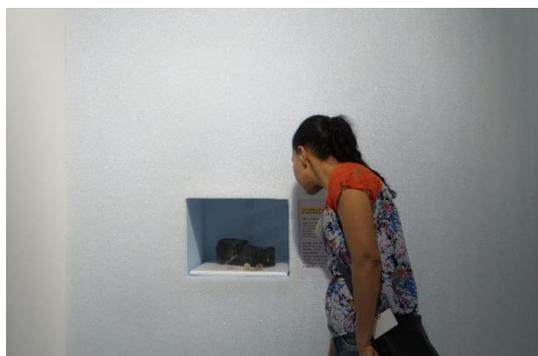


Figure 7. Leisure niche.

Picture: Fernanda Codevilla Soares (January 15th 2018).

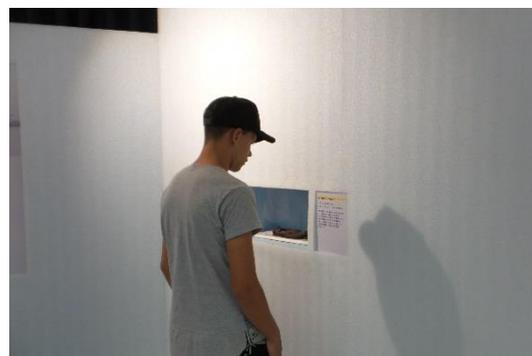


Figure 8. Shoe niche.

Picture: Fernanda Codevilla Soares (January 15th 2018).



Figure 9. Hunting niche (club in detail).

Picture: Fernanda Codevilla Soares (January 15th 2018).



Figure 10. Niche footwear (shoe in detail).

Picture: Fernanda Codevilla Soares (January 15th 2018).

In the footwear niche, one practically complete shoe was displayed, which had been made approximately in the 19th century; it was made out of leather and used as part of the sealers' clothes when at camp. Taking into consideration the marks on this shoe, it is possible to tell that it has been through several mends due to its fragility and the extreme conditions where it was used.

In the clothing niche was displayed a glove made out of fabric and metal buttons. The buttons are dated between 1800 and 1830 according based on the brand names perceived in their inner part, as well as the characteristics of their format. On one of the buttons, a bas-relief reads LONDON and another says LONDON BEST. The buttons and gloves are part of fragments of the clothing used to protect the sailors from the severe cold of Antarctica as well as serving as the mark of a new identity, seamen.

In the food niche a cylindrical glass bottle and bone fragments were displayed. The bottle is dated between 1780 and 1805, estimated through the manufacturing characteristics printed on its body, base and bore. According to microbiological studies this recipient was, possibly, used to store beer, that was drunk to supplement the food of the sealers' groups given its nutritional properties and low alcoholic levels. The bone vestiges were from animals whose cut marks allow us to link them to feeding practices. Most of the animals eaten by the men were not from Antarctica, but shipped from elsewhere.

In the hunting niche was displayed a wooden club, ammunition from different calibers and a wooden sheath. The wooden club was used to cull marine mammals without damaging their skins, which were valuable for the clothing industry in Europe and China. The wooden sheath was, possibly, made by the sealers, on the Antarctica mainland, to be used as a case and protection for a blade or a dagger. The ammunition was used by these groups to hunt marine mammals in order to use their fat to make a kind of oil that would be sold in European countries as machine lubricant or to be used in urban lighting.



Figure 11. In situ bottom of glass bottle.
Picture: Andres Zarankin (January 21th 2011).



Figure 12. Restored glass cylindrical bottle.
Picture: Fernanda Codevilla Soares (May 02nd 2017).



Figure 13. In situ leather shoe sole.
Picture: Andres Zarankin (January 15th 2011).



Figure 14. Restored leather shoe.
Picture: Heuvath Alquimin (May 02nd 2017).



Figure 15. In situ glove.
Picture: Andres Zarankin, (January 21th 2011).



Figure 16. Restored glove. **Picture:**
Picture: Heuvath Alquimin (May 02nd 2017).

Other than these niches, objects used during the archaeological campaigns were displayed, such as trowel (fundamental to dig the ground with such care so no object is damaged), sieve (used to collect very small pieces of vestiges and not leave them discarded if some of them were put in a debris bucket by accident), brushes (used to put the material in evidence when still on the ground as well as cleaning it after collecting if from the ground) a

total station and theodolite (equipment used to locate vestiges in the sites and identify their exact disposition in terms of distance, length and depth), a camera (helps to register the materials found, as well as the methodology used in field), a tablet (used to store forms to be filled out by the digger and by the field coordinator to register the work done, the vestiges found, the structures put in evidence and the material's degree of conservation), a magnifying glass (used to see details and marks on the vestiges that can indicate the technique used to manufacture the piece to understand its forms), a 3D printer and 3D table scanner (used to reproduce virtual mockups of the material in order to make its analysis, conservation and mediation with the non-archaeological public easier).

In addition to these actions, the exhibition also featured a full-size scenographic reproduction of an Antarctic archaeological site, which is normally displayed at the Antarctic Sensory Dome, created from a partnership with the UFMG "Pedagogical Center" and the "Itinerant Museum". An inflatable capsule that has inside a 19th century archaeological site replicated in real size, characterizes what we call a "sensorial dome of Antarctica". The inner space is entirely acclimatized and adapted in order to give the visitor the experience and feeling of being on the continent, an for this purpose we use equipment such as air conditioning, to get low temperatures; fans, to simulate the strong polar winds; speakers, to reproduce animals and storms sounds; illumination, to recreate Antarctica's luminosity and brightness; and projectors, to display videos in 180 degrees about the continent's animals and landscapes. Using its body and senses, the visitor moves around the site and experiences Antarctica in their own way.



Figure 17. Sensorial Dome.

Picture: Fernanda Codevilla Soares (October 18th 2016).



Figure 18. Sensorial Dome interior.

Picture: Fernanda Codevilla Soares (October 18th 2016).

Finally, the video “Perspectivas Austrais” was also presented in the Planetarium movie space. The video was filmed using full-dome technology with 360 degrees images captured by the researchers of the three projects when they were in the field. These images were reworked by the Audiovisual Center of “Espaço do Conhecimento” and transformed into a script that explores the immersive potential of the Planetarium, highlighting the environmental characteristics of the region and the unique experiences lived by Brazilian scientists during the expeditions:

The video explores from a first-person perspective, views from a Brazilian Navy ship that navigates amid blocks of ice, or the cabin of a helicopter that approaches a camp on the mainland or from the edges of a Penguin colony. The idea is to approach this from experiences that would otherwise be inaccessible to the wider public. The adaptation of 360-degree images to the Planetarium's 180-degree hemispheric screen involved the use of modern video-editing tools that allowed us to remap the projections of the images and explore frames and camera movements that gradually reveal unusual aspects of experiences on the continent. In addition to the lyrical and contemplative aspect inherent in a “trip to Antarctica”, the editing and manipulation of photographs and videos also sought to explore the creative freedom of spherical images to promote displacements and inversions that break with the Eurocentric gaze, thus valuing nature and the science of the Southern Hemisphere, topics little explored in most audiovisual productions for Planetariums, mostly from countries in the Northern Hemisphere. By resuming characters and graphic elements that appear scattered throughout the exhibition on the second floor of Espaço do Conhecimento UFMG, the animation section at the end of the production brings a playful bias that seeks to break the melancholy of icy landscapes and unveil not only the richness of the continent's biodiversity, but also the intense scientific activity in the region. In this sense, Antarctica is placed, symbolically and visually, at the center of our eyes (GINO, AMARO and QUADROS, 2019, p. 78)

All of these elements had as objective to associate the sensorial experience of being in Antarctica with the work done by the researchers. We understand that the instruments chosen are added up to the interpretations we make to put in evidence our understanding of archaeology, that includes many research steps, from field collecting to lab analysis, mediation activities and teaching.

DIDACTIC TOOLS FOR MEDIATION ACTIONS

The pedagogical team of the museum has used didactic tools in the mediation actions in a fun way. In this way, eight workshops were developed in order to expand the possibilities of interaction, immersion, learning, exchange, sensibilization and appropriation

of the exhibit. The workshops were part of the vacation program of Espaço, aimed mainly at children (PAGLIOTO *et al*, 2019). Among these, we highlight 3 workshops that were directly associated to archaeology and the history of Antarctica: “Logbook” shows the first sailors that cleared the Antarctic territory during the 18th and 19th centuries using stories and memories from the trips. Reaching people from all ages, this activity was able to deploy important concepts of history and astronomy, mainly exploring the opening panel of the exhibit and the path of the starring sky, that was a symbol for the way to the southern seas. Using the book *Vacation in Antarctica* as an inspiration, the workshop “How to survive in Antarctica Manual” asked its attendants to reflect about what would be necessary to survive in such extreme conditions. The mediator asked questions such as: “which clothes should we take?”, “how can we get there?”, “where should we sleep?”. At the end of the workshop, when the manuals were produced by the children themselves, everybody was ready to visit to the continent, going through all the exhibit (PAGLIOTO *et al*, 2019). The workshop dedicated vertically to archaeology was called “The raid to the vestiges in Antarctica” and was created as a fun investigation in the form of a treasure hunt, with a map and clues that ended up with the discovery of many objects that were samples of archaeological three-dimensional vestiges printed out by LEACH. Before the hunting began an explanation about the work of archeological history was presented, and, after the objects discovered, the instruction was that everything that was found had to be drawn and properly cataloged by the infant archaeologists. As the LEACH researchers were about to go on an expedition to Antarctica, we decided to take the drawings of the children to Antarctica then taking pictures and making videos of them in the BASM, at camp and in the archaeological sites, as a form of bringing them closer to the polar continent using their own production.



Figure 19. Mediation activity in the Knowledge Space UFMG.

Picture: Fernanda Codevilla Soares (2018).



Figure 20. Mediation activity in the Knowledge Space UFMG.

Picture: Fernanda Codevilla Soares (2018).



Figure 21. Mediation activity in the Knowledge Space UFMG.

Picture: Fernanda Codevilla Soares (2018).



Figure 22. Exhibition of drawings in Antarctica by the LEACH-UFMG Team.

Picture: Andrés Zarankin (February 24th of 2018).



Figure 23. Exhibition of drawings in Antarctica by the LEACH-UFMG Team in NAPOC Ary Rongel.

Picture: Andrés Zarankin (February 28th of 2018).

The aim of these didactic actions was to awaken the interest of all visitors in Antarctica, children included, not just as viewers of the content exposed, but also as participants in the discussion who could construct their own knowledge for themselves. Symbolically, at the end of the routes, the participants received a certificate of junior researchers in each one of the disciplines.

FINAL REMARKS

We believe that, like us, the public was enthusiastic about the exhibit, whereas the high number of visitors, more than 30.000 (thousand) visitors. 33 Mediation activities were performed, including: workshops, short courses and storytelling, with more than 403 participants. We also organized guided tours conducted in Brazilian Sign Language (Libras). In addition, the exhibition had 81 journalistic notes, including printed newspapers, TV, radio and Internet (FERREIRA and SÁ, 2019). In opposition, as negative experience, we experienced the theft of an archaeological artifact (a XVIII century metal pipe) that was in an exhibition showcase. Its robbery left an invaluable gap in the Antarctic archaeological heritage.

In summary, we consider the work performed highly positive. For our part, we tried to encourage an emotional / sensorial bond between the visitor and the unknown stories of human contact with Antarctica (past and present). We hope that the experience of "accessing" the continent (albeit in a simulated way through an exhibition) has left diverse impressions / sensations in the visitors, which stimulate a greater interest in the topic, starting from proactive, transformative and meaningful positions.

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