

INTRODUCTION AND MOTIVATION

Building bridges between the public and **Historical Scientific Instruments (HSI)** is a challenging task, due to the diverse cultural and social aspects of Brazilian society.

Enabling the learning of Astronomy through artifacts normally considered **“old and unusable”**, giving them a new meaning that transcends the exhibition itself requires some good practices.

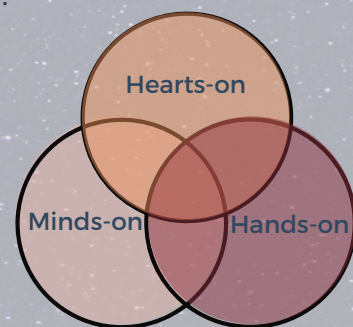
In this work, we aim to share some of the **educational practices** developed and applied with the astronomical HSIs from the collection of the Museum of Astronomy and Related Sciences (MAST), exploring their different roles in the process of construction of our society.

OUR GOALS

. By the creation of educational activities at MAST, such as **mediated guided visits**, the project follows four pillars:

- models and modeling
- three-ways interactivity
- museum education
- horizontal teaching and learning

Applying it, we are able to develop few Astronomy themed visits.



Description: The three-way interactivity, which integrates hearts-on, heads-on and hands-on interactions

DISCUSSION

Beside the project “Popularization of Science and Technology from Historical Scientific Instruments of MAST’s Collection”, since 2017 in MAST, we developed mediated guided visits, through the pillars showed before, considering that:

$$\text{Scientific context} + \text{Sociopolitical approach} = \text{Integral formation and a safe space for reflections and exchanges!}$$

The qualitative results, applying them on the visits are:

- applying **models and modelings** of astronomical concepts are essential for a good didactic transposition, which is essential to the comprehension of complex instruments like Meridian circles, Equatorial telescopes.
- through **motivational questions**, we can improve the **interaction** between the objects and the public,
- the **horizontal teaching and learning** in a non-formal place create a comfortable environment to amplify the social and pedagogical dimension of the collection.

- the **three-ways interactivity** shows us that:
- **minds-on** approaches improves the reflections about the concepts connecting them with our lives today.
- **hearts-on** approaches allows a better approximation with the public and the sharing of memories inspired by the HSIs.
- **hands-on** approaches improves engagement with a diverse public through ludical activities with low cost, making easier the understanding of the concepts.



Description: Part of the development of a mediated visit is the verification of accessibility in the Museum spaces. In the picture, the professor Vitor Marques is touching the dome of the historical telescope “Luneta Equatorial 21” at MAST/BR as a visitor with blindness.



Description: One model developed to exemplify the meridians in the guided visits, made by the researcher Caroline Viana (MAST/RJ).

CONCLUSION

Hence, those good practices in Astronomy teaching in a **non-formal place**, the museum, allows a **dialogue** between society, its perceptions of cultural and scientific heritage, history, and Astronomy, by **using the HSIs as a powerful tool**.

The application of those principles requires **constant updating** of educational strategies to improve interaction and approximation with the public, identifying them with the themes addressed, in order to make the museum collections a **resource** to everyone who sees **potential in the use of them in Astronomy education**, turning those places propitious for new reflections, debates and possibilities.

Through it, it's possible to learn more about our Universe, our role in it, and ourselves.