

# PLANETS IN YOUR HAND:

## The social impact of a tactile experience



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***Planets In Your Hand*** is a science education program, that consists of a portable interactive exhibition of eight planetary surface models.



It offers the visitors a **tactile experience** and the opportunity to understand the diversity of the planetary surfaces in our Solar System.



The exhibition has been visited by a wide range of audience since their construction in 2018 (Palafouta et al., 2019) in a series of public events, **including visually impaired people**.



The current work summarizes the **social impact** of the program.



## Introduction

*Planets In Your Hand (PIYH)* is a science communication project initiated at the Department of Physics of National and Kapodistrian University of Athens (NKUA).

- **Purpose:** To reach individuals with no previous interaction with the field and trigger their interest in participating in scientific activities and public events. This will bring them closer to science and contribute in lifelong learning.
- **The means:** A visual and tangible representation of the planetary environments and morphologies in our Solar System (Kefala et al., 2018), that also benefits visually impaired people.

*PIYH* science communication declares the program as a **non-formal learning experience**, the importance of which is widely accepted and supported by the National Science Education Standards (National Research Council, 1996).



The success of *PIYH* project is established by the *Science Communication Award (ΕΠΙ² Award 2019)* in the category of “*Awareness Activities and Campaigns*”.



PIYH exhibition in Researcher's Night 2019 in Athens, Greece

## Data Collection

### Evaluation of the social impact:

Questionnaires, with multiple-choice questions and a comment section, were filled out by the visitors after their conceivable journey to our Solar System.

Oral impressions and evaluations were also made directly by the members of the *PIYH* team that presented the planetary surfaces and were based on the reactions and the comments of the visitors.



**The goal:** 1) To examine whether the exhibition provides an overall positive experience to the visitors  
2) To find possible ways to improve its presentation.

This research was conducted during **two major events:**

[The opening of the exhibition \(March, 2019\)](#) & the [Athens Science Festival 2019 \(April, 2019\)](#).





## The Social Impact

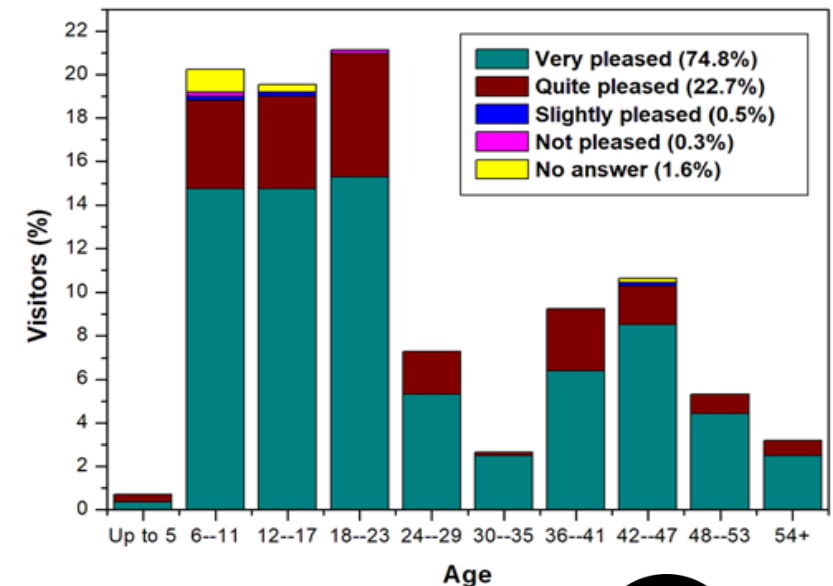
The questionnaires provided an **overall positive feedback** by the visitors:

- *PIYH* exhibition has a significant impact to young ages (<23 years old).
- The majority (97.5%) of the visitors were pleased with *PIYH* project and the exhibition.
- 98.5% of the participants would recommend the exhibition to a friend.
- More than 47% of the visitors shared their mainly positive impressions through additional comments.
- Many parents and educators mentioned that this project can trigger new generations to engage with Astrophysics and Science in general.

The comments and direct observations also proved fruitful:

- **Visually impaired people** commented positively, mentioning that *PIYH* exhibition gave them for the first time the sense of planetary scale, surface characteristics and the unique opportunity to interact with planetary surfaces.
- **People without astrophysical background** were curious to touch and feel the surface's differences, asking questions about the internal and external structure and the atmospheric phenomena of each planet.
- **People with scientific background**, combined facts and knowledge from their own scientific field with the information provided during the events.
- **Visitors familiar with astronomy** and planetary science expressed more elaborate questions, focusing on space exploration.

Visitor's age distribution and impression range





## Summary & Conclusions

**This research has shown** that people of different age and scientific background can be brought together through an interactive and tangible educational experience.

*According to the conducted analysis, the following conclusions have been derived:*

- It is an **alternative, innovative** and interesting way of learning about our Solar System through the **interaction** between the visitors and the exhibits, resulting in a **pleasant and memorable experience**.
- The project **attracted individuals** that have **no previous interaction** with the field of Planetary Science, triggering their interest, and **brought together people** who are already interested in or contribute to science.
- It is a learning experience **accessible to visually impaired people** that encourages the local community to create similar activities.

Similar projects can be inspired by *PIYH* program and engage the general public in science through a pleasant and cognitively successful way, enhancing the communication of science in many fields.



## References

Eshach, H., 2007, Journal of Science Education and Technology, 16, 171-190.

Kefala, K., et al., 2018, EPSC2018,1251-2.

National Research Council, 1996. National Science Education Standards. Washington DC: National Academy Press.

Palafouta, S., et al., 2019, EPSC-DPS2019, 1816-1

More information about the program can be found at our website:

[www.planetsinyourhand.phys.uoa.gr](http://www.planetsinyourhand.phys.uoa.gr)

Also, you can find us on our social media



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