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Astronomy Education Research 101



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OBSERVATÓRIO DIDÁTICO DE ASTRONOMIA
"LIONEL JOSÉ ANDRIATTO" - UNESP DE BAURU

Importance and particularities of Astronomy Education: what the Research says

Rodolfo Langhi

Professor at the Department of Physics and Graduate Program in Education for Science, coordinator of Astronomy Observatory, at the São Paulo State University, School of Sciences (Brazil)

Questions of this research

- What are the aspects that differentiate Astronomy from other sciences regarding its popularization and teaching?
- Why is it important to teach Astronomy?

Where to search the answer?

A bibliographical survey using the results of researches in the field of Astronomy Education, published in academic journals in Brazil.

The answer comes from the researchers of Astronomy Education.

Methods

Research approach: Qualitative research in Education

Method of analysis: Content Analysis (Bardin) with bibliographical survey

Phases: Pre-analysis, Material exploration, Treatment of obtained results and interpretation

Corpus of analysis: academic bibliographical production in Brazil (“voice” of researchers)

- Journals of “Banco da CAPES”, “Teaching” Area (from 2004 to 2017)
- Thesis and dissertations about Astronomy Education (from 1973 to 2018)
- Proceedings of Brazilian scientific congresses (from 2004 to 2017)

Results: The importance of teaching Astronomy and some of its particularities that differentiate it from other sciences

- Awakens **curiosity** and **motivation** in students and people in general, because the Astronomy is "popularizable", favoring scientific culture
- Teaching Astronomy can demystify some common-sense ideas or **misconceptions**
- Frees the student from certain **fears** and **ignorance**
- Illustrates and contributes to a vision of scientific knowledge as a process of **historical** and **philosophical** construction
- It represents a clear example that **science** and **technology** are not far from our **society**
- It is highly **interdisciplinary**, because Astronomy connect with other disciplines
- Its physical objects of study are beyond the eyes of students, we cannot "touch" most **astronomical materials** to be properly analyzed
- It is basically a **visual science** - the teacher needs to make use of pictures, photos, videos, models and other specific teaching resources

Results: The importance of teaching Astronomy and some of its particularities that differentiate it from other sciences

- It enhances teaching work focused on the practice of **experiments** and **models** 3D, because three-dimensional astronomical phenomena is not always understandable in teaching with a two-dimensional figure
- It involves systematic **observation** of the sky with the naked eye and with telescopes
- Your **laboratory** is natural and free, with sky available to everyone
- Many of the **phenomena** observed in the universe have never been, and are not usually found or **reproduced** on Earth
- Its study challenges the ability of **imagination** and **understanding**
- Allows the existence of an **amateur** area - amateur astronomers collaborate with observational data and studies
- It enhances **citizenship** and interpersonal and **social relationships** (amateur or scholar clubs and associations)
- It favors the construction of specific **non-formal teaching** spaces (observatory, planetarium)

Results: The importance of teaching Astronomy and some of its particularities that differentiate it from other sciences

- Learning Astronomy we can **note the errors** in the sensationalist media news and conceptual errors in textbooks
- Learning Astronomy, the teacher **not needs to feel fear** of this content, neither **run away** from teaching it
- It leads the human to mental restructurings that **surpass intellectualism** and simple knowledge
- Studying the universe provides the development of unique aspects of the **human mind**: fascination, admiration, curiosity, contemplation and motivation
- Only understanding the **dimension** of universe, we can develop **awareness** of the urgent need to take care of our planet (the only possible home to live for now)

Thank You!

“Obrigado!”

(in Portuguese)

Contact:

<http://sites.google.com/site/proflanghi>

rodolfo.langhi@unesp.br

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