

# Editorial

## Scientific Initiation as a gateway to developing *scientific habitus*

Rômulo Gonçalves Leão<sup>1</sup>, Luiza Collet Janny Paschoarelli Veiga<sup>1</sup>

<sup>1</sup> Faculdade Israelita de Ciências da Saúde Albert Einstein, Hospital Israelita Albert Einstein, São Paulo, SP, Brazil.

**DOI: 10.31744/einstein\_journal/2023S1**

In common parlance, the term “initiation” may evoke images of secret ceremonies or mysterious rituals in which participants are inducted into hidden secrets. Far from esoteric practices and “mysterious” ceremonies, “Scientific Initiation”, or “*Iniciação Científica*”, as its known in Brazil, can be understood as an pedagogical activity that provides support for the early stages of undergraduate students’ scientific education. Unlike well-kept secrets, science is an open field accessible to all, and its methodology contributes to the development of critical thinking and the making of more informed decisions.

Scientific Initiation, as it is practiced in Brazil, contributes to “initiating” undergraduate students precisely because it serves as a first step towards the development of the so-called “*scientific habitus*”. “*Habitus*” is a concept developed by the French sociologist Pierre Bourdieu<sup>(1)</sup> to describe how individual experiences and interactions within a specific social setting gradually mold a person’s inclinations and choices. *Habitus* is a set of implicit dispositions that guide individual’s actions and choices in a specific social context. These dispositions are acquired over time through socialization and life experiences. As a result, they influence how a person acts and thinks without them necessarily being aware of it.

In this regard, the *scientific habitus*<sup>(1)</sup> can be defined as the way in which scientists, researchers, and, most notably, students internalize the norms, values, and practices of the scientific community, which guide work in the field of science. Thus, one learns science not only by reading about *scientia* but by doing science while observing and discussing *scientia*; in a comprehensive process guided by qualified professionals willing to teach the scientific *modus operandi* through the *scientific habitus*. The *scientific habitus* involves not only the language, etiquette, and intricacies of scientific discourse, but it might also entail the acquisition of skills such as the pursuit of objectivity, a commitment to evidence-based research, intellectual honesty, and transparency in presenting results. Therefore, Scientific Initiation can serve as a gateway to understanding how science operates, not only because the student is actively conducting

### How to cite this article:

Leão RG, Veiga LC. Scientific Initiation as a Gateway to Developing Scientific Habitus. *einstein* (São Paulo). 2023;21:vii-viii.

### Corresponding author:

Rômulo Gonçalves Leão  
Rua Jesuíno Marcondes 92 – Jardim Augusta  
Zip code: 08452-310 - São Paulo, SP, Brazil  
Phone (55 11) 97052-9999  
E-mail: romulo.leao@einstein@gmail.com

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research but also because it enables the development of the *scientific habitus* through the close and extended contact it establishes with more experienced researchers. This is essential for the education of not only future researchers but also future healthcare professionals who will work directly in patient care, in a context of a large volume of information, misinformation, and continuous scientific advancements.

Interestingly, despite its importance, the encouragement of undergraduate research is relatively recent in the global context:<sup>(2)</sup> although there were isolated experiences in the early 20<sup>th</sup> century, the main milestone in its emergence occurred in the 1960s with the founding of the Undergraduate Research Opportunities Program (UROP) at the Massachusetts Institute of Technology (MIT) in 1969. Similarly, in Brazil, there was some financial support for undergraduate research dating back to the 1950s, with the establishment of the National Council for Scientific and Technological Development (CNPq - *Conselho Nacional de Desenvolvimento Científico e Tecnológico*). However, formal encouragement only solidified in 1988 when CNPq created the Institutional Program for Scientific Initiation Scholarships (PIBIC - *Programa Institucional de Bolsas de Iniciação Científica*), a program exclusively dedicated to funding undergraduate research. According to Mairinque and Tintel,<sup>(2)</sup> this program introduced a new way of awarding scholarships, as they are distributed to higher education institutions rather than directly to individual students.

The way undergraduate research encouragement is structured in Brazil, through the model of Scientific Initiation, can be seen as highly beneficial for nurturing the *scientific habitus* during this stage of healthcare

professionals' education. Unlike other places, the Brazilian model involves the voluntary execution of long-term projects, with or without scholarships. According to Bazin,<sup>(3)</sup> the Brazilian model drew inspiration from both the French and American models. In the United States, research incentives typically take the form of a mandatory thesis in the final year of undergraduate studies. In France, this activity occurs through less formal laboratory internships. The fact that Scientific Initiation is not mandatory in Brazil is interesting because it likely encourages the participation of students with genuine curiosity about the researched topics – a quality that is also a part of the skillset of a good scientist.

Hence, it becomes evident that Scientific Initiation plays a crucial role in the education of undergraduate students in Brazil, not only by providing a practical foundation for understanding science but also by cultivating the *scientific habitus* that can guide their thinking and actions in the healthcare and research environments.

#### **AUTHORS' INFORMATION**

Leão RG: <http://orcid.org/0000-0002-6737-3034>

Veiga LC: <http://orcid.org/0009-0006-1083-5716>

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