



## **NOTES and INFORMATION**

### **THE ROLE OF HISTORY AND PHILOSOPHY OF SCIENCE IN TEACHING THE NATURE OF SCIENCE**

Aphrodite M. Macale<sup>1\*</sup>

<sup>1</sup>University of the Philippines Los Baños, College, Laguna

\*Corresponding author: [ammacale@up.edu.ph](mailto:ammacale@up.edu.ph)

**ABSTRACT** – Currently, the challenges of applying history and philosophy of science (HPS) in science teaching could be attributed to the teacher’s unclear view of NOS, lack of skills, and a close-minded attitude towards HPS. There also exists a culture of science teaching which focuses on content memorization and lacks in negotiation. In addition, education document standards and textbooks lack detailed mention of HPS and its role in science teaching.

This paper explores the role of history and philosophy of science (HPS) in promoting a better understanding of the nature of science (NOS) through a systematic literature review. After applying retention criteria, ten (10) articles were selected for review, eight (8) of which covered NOS teaching strategies for students and pre-service teachers while two (2) articles discussed the challenges and obstacles in teaching NOS. Review result reveals that student-centered teaching strategies such as role-playing, replication of historical laboratory apparatus, creative writing, and reflection papers as the most dominant approaches. Short stories on the personal lives of scientists, reading and discussion of historical texts in the form of narratives, and articles or documentaries were also found useful in the application of HPS. Studying and using records of experiments and original works of scientists not only helped improved the teaching of NOS but were also found helpful in clarifying scientific concepts. Investigative analysis of scientific narratives and instrumental approaches in applying documentaries in the history of science, on the other hand, were identified useful for pre-service teachers in understanding the tenets of NOS. Corresponding recommendations as a result of the review were also discussed in the paper.

*Keywords: history and philosophy of science, nature of science*



JOURNAL OF NATURE STUDIES  
(formerly Nature’s Bulletin)  
Online ISSN: 2244-5226

**To cite this paper:** Macale, A.M. 2019. The Role of History and Philosophy of Science in Teaching the Nature of Science. *Journal of Nature Studies*. 18(1), 52-64.