

History, Philosophy and Science Teaching: Editorial

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The 1st Hellenic Conference of History, Philosophy and Teaching of Natural Sciences took place in Thessaloniki in 2001. Since then, it has become a standard multidisciplinary meeting of people working as researchers or teachers on history, philosophy or teaching of science. The latest two Hellenic conferences were held together with International ones (the 11th International History, Philosophy and Science Teaching Conference in Thessaloniki & the 5th International Conference of the European Society of History of Science in Athens) and promoted a dialogue between scholars and teachers around the world.

The 2014 Conference was held at Patras University and aimed at (re)claiming its fundamental questions on whether and how history and philosophy of natural sciences could help their teaching, their teachers' training and their public understanding in both formal and non-formal learning settings (e.g. science & technology museums). The debate is ongoing today. Many still argue, following Kuhn, that including history & philosophy of science in the curricula can lead to serious misconceptions, while others underline its didactical importance as contributing to (a) a humanistic approach to science teaching that aims at the 'broad cultivation' and scientific literacy of pupils as citizens, (b) the development of students' understanding of the nature and characteristics of scientific knowledge, mainly via the 'NoS' educational movement and (c) the cognitive development of students and the shift of interest from methodological to conceptual dimensions of scientific knowledge. Researchers in the field of history, philosophy and didactics of science, teachers and policy-makers at all

levels of education, students of science and/or education and anyone interested in the above issues, were all welcomed to present their innovative work at the 8th Hellenic Conference of History, Philosophy & Science Teaching. Part of the conference set focus on the research studies on the cultural dimension of scientific knowledge, in both formal and non-formal forms of education. In an era when the cultural capital seems to be entirely unrelated with the scientific one, it would be useful to find ways to connect the two.

This volume includes papers of scholars who were invited to Conference as keynote speakers in order to explore what current research shows with respect to the above questions. Igal Galili, Prof at the Hebrew University of Jerusalem, in his paper, introduces the concept of cultural content knowledge. He argues that this kind of knowledge includes alternatives and problematic elements of knowledge from the historical discourse in a particular domain and could give meaning to the conceptual and methodological dimensions of the taught science knowledge. In parallel, he points out that this 'peripheral' knowledge may include alternative conceptions of learners and that establishes the space of learning by conceptual variation which is required for meaningful learning.

Laurence Maurine, Prof at the University of Paris-Sud, in her paper, refers to the main results of two studies conducted in her laboratory concerning the NoS research field. More specifically, she demonstrates how her research group designed and used a NoS multidimensional matrix in order to analyze several French science programs and the representations of sciences they convey. William McComas, Prof at the University of Arkansas and Kostas Kampourakis, researcher at the University of Geneva, in their paper, refer also to NoS issues. They present a method whereby each of nine general NOS aspects can be illustrated with examples from the history of biology, chemistry, geology, and physics. According to the researchers, the entire set of examples, linked to these general NOS aspects, provides an immediate instructional resource that teachers can use to teach science content and NOS.

Athanassios Raftopoulos, Prof at the University of Cyprus, in his paper, referring to the problem of the epistemological adequacy of high school students and their ability to understand the distinction between scientific hypotheses or statements that are well entrenched in a scientific community and working hypotheses that are beliefs rather than knowledge, makes an analysis of the distinction between knowledge-statements and belief-statements and discusses the implication for science teaching.

Finally, Evangelos Vitoratos and Sotirios Sakkopoulos, Profs at the University of Patras, in their paper, raise the problem of the dogmatic presentation of physics knowledge in school textbooks and give examples of how history and philosophy of science gives the opportunity to think about nature making physics a pleasant intellectual exercise.

I would like to cordially thank all the authors for their interesting proposals. Also, I owe my warmest thanks to Prof Kostas Ravanis for inviting me to host this work in the Review of Science, Mathematics and ICT Education journal.

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