S-92 – Science Education and the History of Science: Multiplying Pasts and Prospects

Science Education

Organizers:
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Abstract:
Over the last two decades, science educators have shown renewed interest in the history of science, especially in light of mandated national and international primary and secondary school ‘nature of science’ standards. At the same time, historians of science education (led by John Rudolph and others) have begun to complicate understandings of what we mean by ‘science education’ and ‘the nature of science,’ largely by calling for increasing attention to more diverse practical contexts and learners, both formal and informal. This symposium proposes to put new work in the history of science education in dialogue with new work done by science education practitioners, in order to further multiply the national and international points of contact and mutual engagement of these two fields going forward.

Part 1 of the symposium would focus on case studies that query the historiography of science education, and so it would explore: what have historians of science identified as new and important science education practices in the past, across various times and places as well as different kinds of institutions and sites, both formal and informal? How global versus local are these practices and what can historians of science, education and science educators learn from them? Presentations would include: girlhood and the pedagogy of experimentation in the European Enlightenment (Eddy), children as scientific learners during the nineteenth-century U.S. ‘universal education’ movement (Pandora); and youth science competitions in Sweden, as a form of Cold War science education (Lövheim). Formal commentary would be provided by a co-organizer (Kampourakis).

Part 2 of the symposium would be devoted to practical uses of the history of science in science pedagogy, and so it would examine: moving beyond Conant’s Harvard ‘case studies’, how have educators made new uses of history of science in science education, and how have these approaches remained consistent and/or varied across different geographical places, scientific disciplines, and kinds of institutions? How might these practices circulate, globally versus locally, and what can historians of science, education, and science educators learn from them about productive future collaborations? Work presented would focus on: how reenacted or discussed historical experiments can be used to teach both scientific concepts and the cultural dimension of science in university-level physics classes (Heering); why a survey and evaluation of the Journal of Chemical Education’s recommended uses of history of science reveals the ‘nature of science’ as a contested space for K-12 and university educators (Powers); and how historical trends in the U.S. federal funding enterprise for STEM education have understood and attempted to make space – or not make space – for Native American indigenous knowledge and research methodologies (Venable). Formal commentary would be provided by a co-organizer (Rader).
Keywords: science education – STEM policy – epistemology – reform movements.

Participants:
• Daniel Lövheim
• Jessica C. Venable
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• Katherine Pandora
• Karen Rader
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• John C. Powers