EDITORIAL

Graduate Students Grapple with the Practicalities of Recovering Beauty through STEM Education

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Responses

JASTE is a non-refereed, open-source, journal. We encourage reader feedback on contributions to it. Please send your comments, suggestions, etc. about this paper to Dr. Burke at the above address. Thanks!

When I received an email from Larry Bencze (co-editor of this journal) advertising the JASTE Special Issue on STEM Education, I was keen to see how the activist interpretation of the science, technology, engineering and mathematics (STEM) construct might differ from that presented in a recent Special Issue in a subscription-based journal to which I had contributed (Shanahan, Burke & Francis, 2016). Having a keen interest in STEM developments across Canada, I scrolled through the pages of the JASTE Special Issue and before long my attention settled on David Blades’ Letter to a junior colleague (Blades, 2016). Since I had recently been speaking with David about my new faculty appointment in science education, I imagined (perhaps somewhat egotistically) that I was the intended audience for this publication. As I read, much of what was written resonated with some of the objectives I had for my own teacher education classes. Indeed, with David’s permission, for the last two years our program has been using an adaptation of one of his assignments to explore wonder and beauty in science with all of our elementary teacher candidate cohorts (see Blades, 2015 for David’s keynote address presented at the Canadian Science Education Research Group—SERG—Conference 2015). I began to wonder how applicable David’s proposals about STEM and beauty were to a teacher education context. An idea was formulating with regard to a graduate course I was developing titled Curriculum Issues in Science Education.

The course explores the historical and philosophical origins of the Ontario K-12 science curricula. It starts by examining the sociopolitical context within which the Science Council of Canada’s curriculum review of the late 1970s and early 1980s took place. Students examine a range of documents contributing to this review, contrasting them with contemporary scholarly texts and commentaries. The aim of the course was to contextualize Canadian and international debate on the direction of science education as students explored the question: How can an examination of the ways that science education has developed and been mobilized in different classroom contexts inform our focus for the future of science education? The course’s emphasis on using our examination of the past and present of science education to support us in making more informed choices about the future of science education aligned so well with David’s letter that the idea was birthed: as a culminating assignment, students would write a response to David’s open letter published in the JASTE Special Issue on STEM Education.

1 Editor’s Note: Larry had invited David Blades to contribute to the Special Issue of JASTE on STEM Education after having enjoyed his part in a role-play conference presentation (goo.gl/hS3Bn4) at the University of British Columbia (Blades, Weinstein, & Geason, 2014).
All students enrolled in the class (21 in total) were Master’s students. Some were in the final months of their Master of Teaching program (gaining teacher certification at the same time as a research-based master’s degree), others were experienced teachers returning to complete a coursework-based MEd, and still others were MEd students who had backgrounds in science but who did not have school-based teaching experience. This diversity of backgrounds supported development of a rich and diverse range of perspectives from which the students took up David’s letter. A selection of student response letters is included in this Special Issue and we are so pleased that David has agreed to write his own series of responses to the students’ ruminations: I know they will be delighted to have the conversation progressed in this way.

By way of orientation, the set of graduate student response letters begins with Mark Thomas’ account of STEM as a way of promoting integration of subjects to foreground issues-based education for a more responsive and responsible citizenship. Mark raises some provocative questions regarding the congruence of subjectivity, beauty, and science. In the second response letter, Sieran Yung reflects on personal experiences of science in both formal and informal educational settings. Sieran’s letter focuses on how we define beauty in STEM and explores how teacher modelling can inspire feelings of wonder in science students. Andrew Mannone writes his response letter from the perspective of an elementary preservice teacher. Andrew considers how some of the valuable messages from the Science Council of Canada’s review have retained their significance despite the rise in newer, shinier constructs such as STEM; his emphasis on citizenship education is illustrated by his exploration of science as a means of supporting development of 21st century competencies. The fourth contribution is made by Fraser Telford; Fraser speaks from the perspective of a history specialist likely to start his teaching career in a generalist elementary classroom. He highlights ways in which the combination of STEM and aesthetic appreciations provide him with a clearer pathway into science education. Zoya Padamsi’s response letter proposes resistance to STEM altogether, given that we already have a construct (STSE) that works very effectively in the Canadian sociopolitical climate and reinforces the ethical dimension of scientific practice. Our final contribution is made by Deanna Harris who demonstrates how her own research interests in science, technology, society and the environment (STSE) are influenced by the recent emphasis on STEM education and highlights how subversion may not be the means by which the place of STSE is reinforced in Canadian science education.

This small collection of responses provides a flavor of some of the conversations occurring amongst our next generation of science educators. I congratulate the students on their hard work during the course and hope that they will enjoy reading David’s individualized responses.

References