

Contemporary Trends and Issues in Science Education

Volume 52

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Maria Evagorou • Jan Alexis Nielsen
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Science Teacher Education for Responsible Citizenship

Towards a Pedagogy for Relevance
through Socioscientific Issues

 Springer

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ISSN 1878-0482

ISSN 1878-0784 (electronic)

Contemporary Trends and Issues in Science Education

ISBN 978-3-030-40228-0

ISBN 978-3-030-40229-7 (eBook)

<https://doi.org/10.1007/978-3-030-40229-7>

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This Springer imprint is published by the registered company Springer Nature Switzerland AG.
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Foreword

I can remember it quite distinctly – the sound of a succession of steel gates each being locked behind me before the next one in sequence became unlocked for me to pass through. Needless to say, I was well aware of the high-powered rifles that scanned the courtyard as well as the stares and catcalls from inmates pressing weights as I made my way to the “school,” a structure which served as the education building deep inside this maximum-security prison. The guards addressed the convicts as “Inmate 20065” or “Convict 14680.” I addressed each by their name. There were Jack, Jesús, Robert, and Gerardo, among 46 others. I addressed each of them as though they were my students. In fact, they *were* my students.

It was 1978, and I found myself teaching a course for Syracuse University on Bioethics at Auburn Correctional Facility in upstate New York. Syracuse offered courses through a program called the independent study degree program, but the courses for the prison were actually offered face-to-face. This was one of the two assistantships I had to pay my way through graduate school. It was certainly a first for several reasons: the first time that I had ever set foot inside a prison, the first time that my students would be taking a college-level course, and the first time that a course in Bioethics had ever been offered at Syracuse – either on the main campus or in any other alternative setting.

Sounds quaint, doesn't it? An alternative setting. This was indeed an *alternative* setting. The charges ranged from murder and armed robbery to possession of narcotics and breaking and entering. It was also my first attempt at developing a responsible pedagogy, contextualized in science, aimed at developing citizenship. For such crimes, one could argue that a punitive, retributive, or reformative approach to incarceration was each appropriate. Perhaps some combination of those might bring about some measure of justice. My personal choice, both as a citizen and as an instructor, was to focus on the latter, which is one of the reasons I accepted this position. If and when any of my students would be released from prison, would they become members of a pluralistic society who would hopefully function as “productive” and “responsible” members of the human condition? Would they be reformed? Educated?

I saw my challenge as one in which my pedagogical decisions would need to be embedded in a sense of responsible pedagogy if my distal aim was the promotion of responsible citizenship. This was my opportunity to delve into areas of normative ethics, meta-ethics, moral reasoning, moral development, character development, a just community approach to education, argumentation, and related areas in the context of science, which were to become the precursors of the socio-scientific issues (SSI) framework some years later.

As I write this, in July 2019, it is difficult to fathom that 40 years has passed. I have just finished reading a brilliant collection of chapters from Maria Evagorou, Jan Alexis Nielsen, and Justin Dillon, who edited this book, *Science Teacher Education for Responsible Citizenship: Towards a Pedagogy for Relevance Through Socio-scientific Issues*. They have worked with some 37 international scholars to contribute chapters to this volume for the series “Contemporary Trends and Issues in Science Education.” It would be difficult to find a stronger and more qualified group of contributors in the field of science teacher education.

The power and utility of this work lie in the global perspectives brought to bear on the topic of SSI as it relates to science teacher education. The overarching aims of utilizing the SSI framework are to cultivate responsible citizenship, to stress the importance of making science relevant to students, and, I might add, to compel science teacher educators to exercise pedagogically just decisions in promoting a functional view of scientific literacy that requires the exercise of evidence-based reasoning with a virtue ethic of care and compassion about the quality of our world and those that dwell within it. Accordingly, the contributors of this volume expand on issues related to promoting responsible citizenship, epistemological beliefs about teaching SSI, how SSI can play a central role in science teacher education and professional development, and challenges and the means to overcome them in designing and enacting SSI-based curricula. I found the chapters to be synergistically connected, each fleshing out the other, providing perspectives from young and seasoned scholars and all with an appropriate blend of empirical or analytical scholarship coupled with practical suggestions and implications for science teacher education and classroom practice. I do offer several leading questions that may serve as an advanced organizer when reading this book:

1. Do science teacher educators have a moral imperative to promote citizenship education?
2. How might science teacher educators prioritize and highlight the co-generative relationships among socio-scientific issues, subject matter knowledge, nature of science, and citizenship concerns for social and environmental justice?
3. What practices in science teacher education, and in the teaching of SSI, facilitate or potentially impede its pedagogical impact?
4. How can SSI best be taught as a method of guided inquiry?
5. How can SSI teaching help to dissipate the perceived barriers between the quadrivium and trivium?

For those pondering a possible dissertation or are so inclined to conduct further research, two addition questions are:

6. How can you build on this body of work to better articulate its goals in practice?
7. What are the conceptual or empirical blind spots in this body of work?

The irony was lost on me in 1978. It was not until a few years later that I learned the etymology of the word “school.” It is derived from the Latin word *schola* as well as from the Greek word *skhole*. Both imply a sense of leisure and idleness (in the sense that one is not bound to have to work). In ancient times, if one was not compelled to work constantly in order to survive, then that person was certainly a member of the leisure class – a person of privilege who could spend their free time learning the seven liberal arts (i.e., quadrivium and trivium), including mathematics, music, rhetoric, and the like. One could participate in discussion and argumentation and participate in leading oneself out of ignorance. The irony, of course, was that those serving time had “time” as it were on their hands. Those who were selected to enroll in college coursework, to be schooled as it were, had leisure time to move from the house of brutes into one of higher consciousness. They could be led from ignorance and become educated, which is, after all, the root of the word “education.” (To this day, I take a certain measure of delight in letting my university students know that they *not* working while they attend classes as that time is, in fact, their leisure time.)

So, I view science teacher education as a means to bring about responsible teachers who, in turn, bring about responsible students seeking to become virtuous in their words and deeds. This is nothing short of an educative exercise in participatory citizenship, and this is precisely what SSI and those who advocate SSI in science teacher education, such as the authors in this book, strive to achieve.

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