

Chapter 1

Critical Voices in Science Education



Jesse Bazzul and Christina Siry

Many people need desperately to receive this message: 'I feel and think much as you do, care about many of the things you care about, although most people do not care about them. You are not alone'.

– Kurt Vonnegut Jr., *Timequake* (Vonnegut 1998)

I dream. Sometimes I think that's the only right thing to do.

– Haruki Murakami, *Sputnik Sweetheart* (Murakami 2002)

This book came into being because of an ever-present cacophony: the sounds of students, teachers, and researchers critically engaging the field of science education for the wellbeing of communities and justice for our shared planet. It is no easy task, as hardship, resistance, and confusion admittedly account for some of these sounds. There are no promises of return (of any kind), no roadmaps to tell where and how something might be changed in a field that could be so integral to the creation of environmentally and socially just futures.

This collection captures the diverse stories and journeys of science education scholars as they have come to do important critical work in the field. Work that can often be opposed, censored, or discouraged by institutions, social forces, and even people we have come to trust and learn so much from (and still do). What follows are narratives of struggle, sense-making, and hope generously shared by a diverse group of science teacher-educators and science education researchers. Collectively, they present snapshots of their various experiences, as well as insights into the challenges many justice-oriented science educators face as they work within education systems that keep systems of oppression and destruction, such as white supremacy

J. Bazzul (✉)

University of Regina, Regina, Saskatchewan, Canada

e-mail: Jesse.Bazzul@uregina.ca

C. Siry

Institute of Applied Educational Sciences, The University of Luxembourg,

Esch-sur-Alzette, Luxembourg

e-mail: Christina.Siry@uni.lu

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and global neoliberal capitalism, locked in place. The goal of the book is simple, yet, we feel, expansive and of-the-heart. It is intended as a beacon of positivity, guidance, and faith to anyone taking a tumultuous ethical road in the field of science education. In solidarity – you are not alone!

1.1 Meaningful Connections and Dark Basements

Jesse: The idea for a ‘critical voices’ book came at a time when doing justice work in science education seemed extremely daunting to me as a recent PhD graduate. I did not have a job, and prospects were uncertain at best. I began to doubt whether science education was a real discipline! Was the field simply a distraction from the necessary justice work needed to avoid immanent catastrophe – social, environmental, and spiritual? Should vital energies be exerted elsewhere?

I was fortunate enough to be able to discuss these questions with Carol-Ann Burke when we were students at the University of Toronto (and later, long distance between Calgary/Toronto, Canada, and Massachusetts, USA (see Burke and Bazzul 2017)). Our conversations about science education led us to think that it might be helpful to assemble the voices of science education researchers, graduate students, and teacher educators dealing with similar dilemmas. Though Carol-Ann needed to step away from this project, I am indebted to those conversations. For me, they are an example of the meaningful connections educators seek to have with a community; connections that are absolutely necessary to being and thinking. Now, the collaborative work with Chris Siry, and the personal work shared by authors, have become another series of meaningful connection points. In fact, this whole book might be best thought of as a constellation of meaningful connection points that are simultaneously different, yet appeal to commonalities we might have in doing this work. To put it broadly, these points begin to form images and dreams of, ‘how things might/should go’.

One thing that is woven into everyday educational life are tiny glimpses of living-in-common and the desire to share as much as possible. For example, in my experience, the smaller side of religions teach me all about a radical kind of equality, yet often they do so by challenging the very structures that allow these ways of being to exist in the first place. The education building at the University of Toronto where I studied was brutal, but in and around such places people are creating something different and wonderful. I need people to show me strange things, and teach me love. As educators, we must continually create connection points, make them grow, and proliferate the power they bring.

Chris: When you first asked me to join this project, Jesse, I was excited to be able to collaborate on creating a space for authors to critically reflect on their experiences and share these reflections; a space for giving voice to their stories. The resulting stories are intensely personal, and illustrate the diversity of ways in which

we deal with struggles while continuing to seek opportunities to make and remake our worlds. These deeply personal stories create biographical reflections which capture "...a vast array of impulses, instincts, memories, and dreams – visualized, theorized and told as a story" (Dhunpath 2000, p. 546). In the diversity of stories shared in the chapters of this book we find the connection points you write about, which underscore the entanglements between our experienced realities. These layer, twist and wind together to give a lens into "how things are" through the narratives shared in the sections that follow, from which I emerge as a reader with my own reflections on "how things could/should be." A book creates a relationship, a relationship between the writer and the reader, and those readers who engage with the stories in this volume will hopefully emerge with new reflections and considerations about their own work. The narratives that follow each reflect individual challenges encountered by those working to "do good work" while collectively coming together to leave a reader with a sense of hope; hope that through the expression of these polysemic reflections on struggle and resistances we can come together to support each other in creating connection points to collectively find openings for transformations.

1.2 The Trouble with "Doing the Work" and the Power of Collective Voice and Narrative

The chapters of this volume highlight a multitude of ways in which scholars in the field of science education are making sense of the journeys they have undertaken, and together highlight some of the troubles experienced by those "doing the work". The authors express the power that can come from turning to diverse critical theories to make sense of experiences and to use this sense-making to work towards transformations. "We humans have a deep relationship with our past experiences, as 'each occurrence is charged with echoes and reminiscences of what has gone before, where each event is a reminder of other things' (Dewey 1920, p. 1)" (Goodson and Gill 2014, p. 224). One of the things this volume achieves is a tangible, and somewhat bulky, move toward privileging narrative, voice, and creativity. We do not tease out narrative from storytelling or narrative inquiry. We have also not refined our use/definition/description of narrative, nor have we requested our contributors to do so. In broader terms, however, and in a way that is relevant to 'science people', this volume erodes the separation of what philosopher Jean-Francois Lyotard (1984) deemed scientific knowledges and narrative knowledges. Many scientists, as well as social scientists, may dismiss the privileging of narratives and/or narrative knowledges and view them as the non-province of science and, by extension, science education. This may be because narratives and narrative knowledges have no (or few) methods of internal legitimation. However, following Lyotard, one vital point about narrative and scientific knowledge still remains relatively unconsidered: if

science and science education want to justify their engagement in the world, this can only happen in the form of narratives and narrative knowledges – the stories we choose to tell and create. As educators we have an ethical role to engage the narratives that guide and constitute what and how science is done, who science is for, and for what end(s). The stakes and complexity of this task could not be higher.

Storying can be an endeavor that is oriented towards liberation and transformation (Goodson and Gill 2014); one in which we are reminded of the past as we work to construct the future. We facilitated the creation of this book, not as a stable or universal narrative on struggle or resistance, but rather, to underscore the value of storytelling and the power of reflecting on the stories we are told. In writing about life history research, Dhunpath (2000) coined the term “narradigm” to illustrate the ways in which “...our lives are intrinsically narrative in quality. We experience the world and re-present our experience narratively” (p. 545). The chapters that follow use a wide range of genres and authorship to re-construct, re-present and interpret experiences. Story, metalogue, poetry, art, and theory all come together to elaborate the distinct perspectives and stories of the authors. Taken as a whole, these chapters reveal a little of the complexities of being and becoming for critical science educators. They also elucidate some of the subjective meanings people ascribe to their experiences, along with how these shape individual and shared perspectives on the role of science education scholars. The narratives of resistance to dominant paradigms, drawing on theories of resistance and emancipation, prompt reflections on notions of what “science” is, and what it means to be critically oriented researchers of science education. It is our hope that this polyvocal/polysemic book illustrates the ways in which our historicity shapes how we teach, what we write, and how we conduct research; in short, ‘who we are’ as science education researchers.

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Jesse Bazzul is Associate Professor of Science and Environmental education at the University of Regina. He feels that comprehensive attention needs to be given to the way typically depoliticized fields of study, such as science education, work to constitute political and ethical forms of life.



Christina Siry is an elementary science education researcher and teacher education, and currently Professor of learning and instruction at the University of Luxembourg. Her research is grounded in critical theoretical approaches and she has a particular interest in plurilingual students' interactions as they do science at the elementary and early childhood levels.