

Environmental and Sustainability Education in Teacher Education

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This volume of the *Canadian Journal of Environmental Education* (CJEE) is devoted to Environmental and Sustainability Education in Teacher Education (EST-TE). It was inspired during early conversations amongst organizers of the Research Symposium who wanted to ensure a reputable forum for the publication of research. The Research Symposium was organized and hosted by the Standing Committee on Environmental and Sustainability Education in Teacher Education (the “Standing Committee”) of the Canadian Network for Environmental Education and Communication (EECOM), fall 2018, in Cranbrook, British Columbia.

The ESE-TE Research Symposium, the first of its kind since the inception of the Standing Committee in 2017, had several purposes: to provide academic and non-academic participants (e.g., teachers, practitioners, NGOs, ministry personnel, not-for-profits) with the opportunity to share their research with a small but growing community of like-minded stakeholders; to inspire both formal and informal discussions on the status of ESE-TE as a developing field of studies; and to strengthen collaborations through networking. These purposes were derived from some of the strategic directions and actions of the Standing Committee after an inaugural National Roundtable on ESE in Pre-service Teacher Education held at Trent University in spring 2016. At this event, organizers and delegates crafted a National Action Plan on ESE-TE alongside the Otonabee Declaration, a signed agreement calling for mandatory components of environmental education in all Pre-service Teacher Education programs across Canada (<http://eseinfacultiesofed.ca/practice-pages/history-ese.html>).

Strategic directions and actions do not operate in a vacuum. Those created by the Standing Committee were informed by its mission to advance and support the development of high-quality ESE through research, policy, and professional development in Teacher Education across Canada. Research has always been central to the mission of the Standing Committee, as is reflected in its strategic directions and actions.

Research on the origins of knowledge and research on how disciplinary fields become established (Hirst, 1974; Goodson, 1987, 1985), such as the developing field of ESE-TE, demonstrate that cultivating, nurturing, and celebrating the diverse forms of research and their derivative activities are

critical to advancing a disciplinary field. The developing field of ESE-TE is no exception and is perfectly situated to benefit from such research initiatives.

Approximately 80 attendees, 27 of whom were presenters, participated in the fall 2018 Research Symposium, which was organized as follows: After a short plenary, there were two one-hour sessions to facilitate the sharing of research and practice (praxis) on ESE-TE. Within each of these sessions, there were three or four presentations (organized by common theme, e.g., place-based education) and subsequent discussions. These sessions were followed by breakout groups focussing on expanding work in ESE-TE, sharing resources, and making commitments to concrete actions.

Consistent with the Standing Committee's strategic directions and actions of conducting, supporting, and disseminating ESE-TE research, attendees were invited to submit papers for consideration and review in this volume of CJEE. A general call to other members of the ESE-TE community beyond the Research Symposium was extended through traditional channels, e.g., the CJEE website and other media platforms.

This is the first time in the journal's 23-year history that a volume has been dedicated exclusively to Teacher Education (<https://cjee.lakeheadu.ca/issue/archive>). This speaks to the efforts of the Standing Committee to realize some of its strategic directions and actions in a relatively short period of time. We are serious about moving the field forward, and one way we will accomplish this is by more formally recognizing the important role research plays in doing this. Research and teaching are coordinated through a dialectic, with one informing the other. For ESE-TE to become a credible disciplinary field, replete with all the qualities that determine a discipline (e.g., distinct history or tradition, unique body of knowledge, unique language and concepts, particular and internal qualities of assessment) (Goodson, 1987, 1985; Hirst, 1974), it must be driven by a vibrant and thriving ESE-TE research community. The fact that the CJEE was receptive to dedicating one of its annual volumes to Teacher Education also speaks to the importance that the editors attribute to this emerging field of ESE-TE. The CJEE realizes the impact teacher educators have on future generations of teachers and their students, and as such the editors felt it was time to dedicate a volume to the topic. We are grateful for this, as those of us who educate teachers *about*, *for*, and *in* ESE know how challenging and rewarding the task can be (Karrow & DiGiuseppe, 2019; Karrow, DiGiuseppe, Elliott, Gwekwerere, & Inwood, 2016).

The Call for Proposals for this issue generated a healthy pool of manuscripts for review, out of which seven were selected for publication. As co-editors, we volunteered to edit the volume under the direction and oversight of editors Pat Maher (Nipissing University) and Blair Niblett (Trent University). A number of experts drawn from the broader community of ESE-TE academics served as reviewers and are recognized as such within the Front Matter of this volume.

The seven manuscripts represent a diversity of authors, each doing research in the developing field of ESE-TE. While much of the authors' research are

completed, some is still in progress. The research itself reflects a variety of methodological approaches, topics, problems, contexts, theoretical perspectives, ontological and epistemological stances, world views, and philosophies. All corresponding authors are teacher educators working in faculties/schools of education across Canada. Some collaborating authors may be non-academics working in institutes or organizations supporting faculties of education. The authors and their collaborators come from British Columbia, Saskatchewan, Manitoba, Ontario, and Nova Scotia. We have widespread geographical representation from across Canada, encompassing both large and small faculties of education. The institutes and the faculty members who teach and research within them, though diverse, are united in their passion and commitment to educate future teachers about environmental and sustainability issues.

For a variety of political, philosophical and pragmatic reasons (Karrow & Fazio, 2015), ESE is not typically recognized as a discipline but rather as an *interdiscipline*. Such claims for “interdisciplinarity” are commonly rationalized on historical, epistemological, and philosophical grounds (Palmer, 1998). This can pose challenges in K–12 schools and faculties of education that prepare teachers to teach distinct subject knowledge. Teacher educators navigate this terrain, with varying degrees of success, from within traditional school-based subjects, such as science, mathematics, social studies, the humanities, and physical education. Many of the contributing authors are teacher educators integrating ESE across these traditional school-based subjects.

In the first chapter, “Environmental and Sustainability Education Pedagogical Approaches in Pre-service Teacher Education,” authors **Laura Sims**, **Madeleine Asselin**, and **Thomas Falkenberg** introduce readers to a study reporting on the findings of the effectiveness of pedagogical strategies used in two Curriculum and Instruction courses as part of the pre-service Teacher Education program at Université de St. Boniface, Winnipeg, MB. The authors justifiably cite an appeal made by Evans, Stevenson, Lason, Ferreira, and Davis (2017) for more empirical research on ESE-TE pedagogical strategies because of its scarcity. In addressing the research gap to which Evans et al. point, the authors conduct a case study exploring former students’ perspectives on ESE pedagogical strategies employed in their courses and their experiences incorporating these strategies into their own teaching. In this case study, the researchers employed a semi-structured interview protocol to evaluate the experiences of 17 former student teachers. Several themes were derived from the participant interview data: i) examples of community-based learning, providing opportunities to act; ii) facilitating experiential, inquiry-based learning; iii) importance of relationships; iv) sharing the responsibility of learning; and v) constraints or challenges to integrating ESE pedagogical strategies. Researchers found that “modelling, providing opportunities to practice the strategies through planning, experimentation, and facilitating community-based activities helped participants gain knowledge, skills, and confidence in their application and in exploring how to innovate with these strategies in different contexts” (Sims, Asselin, & Falkenberg, 2019, p. 6-27).

In the second chapter—“Pathways, Philosophies, and Pedagogies: Conversations with Teacher Educators about Place-based Education”—authors **Janet McVittie, Geoffrey Webber, Laurie-Ann Michelle, and Dianne Miller** provide a timely review of place-based education (PBE). They are specifically interested in, “How Canadian teacher educators are taking up [place-based education], their understanding of the philosophy and purpose of PBE, and their experience of the rewards and challenges of PBE as they have infused it in their work” (McVittie, Webber, Michelle, & Miller, 2019, p. 36). McVittie et al. report on the findings of a survey administered to eight Canadian PBE champions in faculties of education. The researchers’ initial surveys were followed up with individual and/or focus group interviews. Survey and interview data generated the following themes: the participants’ pathways to PBE; terminologies for PBE; purposes for PBE; pedagogical practices used in PBE; structures in education and in society that affected faculty ability to incorporate PBE in their Teacher Education programs; and Indigenous knowledge of place. For a clear majority of participants, pathways to PBE derive from environmental education, through their own research or practice. Further, their data seem to confirm the “elasticity of PBE as a term” itself. As for the purposes of PBE, participants provided compelling and passionate accounts of why PBE is so important to their practice; the authors observe: “participants’ life philosophies are illustrated in their approaches to PBE, which lead them to particular pedagogical practices” (McVittie et al., 2019, p. 41). Concluding, McVittie et al. add that PBE is amenable to a variety of pedagogical practices, including inquiry and experiential learning. Furthermore, PBE is essential to critically addressing environmental issues, and provoking creative and innovative ways of learning. What’s more, participants identified numerous institutional and social structural constraints to PBE, such as university, faculty of education, school division, ministry of education policies and procedures, and the political-economic ideology of neoliberalism. Participants also acknowledged the relationship between Indigenous knowledge and PBE, despite their contrasting ontological premises. In closing, the authors appeal to teacher educators to bring greater critical perspectives to Teacher Education by reasserting three important questions: *What does it mean to be alive in the world? What does it mean to be where you are? What does it mean to learn about the local environment that one is embedded in?*

The third chapter, “Sustainability Learning Pathways in the UBC Teacher Education Program: Destination Cohort,” by authors **Patrick Robertson, Robert VanWynsberghe, and Bruce Ford** describes a unique program involving a dedicated cohort of student teachers in the faculty of education at the University of British Columbia, Vancouver, BC. The cohort was launched fall 2018, and the authors’ case study describes the design, genesis, and pathways for infusing sustainability in their program. They also delineate specific activities, outcomes, and impacts of the program to date. The project consisted of three phases: Phase 1: Making the Case; Phase 2: Shaping the Case; and Phase 3:

Piloting and Evaluating the Case. In their explanation of the first phase, the authors share the results of a scan of environmental education programs across Canadian faculties of education. A group of stakeholders discussed and identified the pathways that have the greatest potential to impact Teacher Education at UBC; the pathways included: “professional development events and activities, a cohort in the Teacher Education program, an extended practicum, and the community field experience” (Robertson, VanWynsberghe, & Ford, 2019, p. 56). Phase 2: Shaping the Case, the authors design and implement a series of professional development activities connected with the sustainability learning pathways. The success and momentum generated through the professional development pathways motivated authors to develop an application for a new Teacher Education-for-sustainability (EFS) Cohort as part of UBC’s Teacher Education program. Phase 3: Piloting and Evaluating the Case, once the cohort was established it was relatively easy to build on and extend UBC’s Teacher Education program and their existing community partnerships, e.g., schools, communities, school boards and districts, to galvanize the EFS Cohort. At its “time of writing” the authors acknowledge that a variety of formative and summative evaluation methods, including for example, pre-and post-surveys, teacher candidates’ reflections and projects, and program evaluations are to be employed in a comprehensive evaluation strategy. The authors conclude their chapter by examining “successes, challenges, and lessons learned” (Robertson et al., p. 50).

In the fourth chapter, “Creating a Climate of Change: Professional Development in Environmental and Sustainability Education through University and School Board Partnerships,” authors **Hilary Inwood** and **Alysse Kennedy** describe a university–school board partnership that seeks to use the EcoSchools program as a template to bridge pre-service teacher with in-service teacher professional development. The initial findings of a three-year case study tracking and documenting early results are summarized. This summary is followed by a detailed description examining this partnership in professional development (PD) in ESE, beginning in 2017 between the Ontario Institute of Studies in Education (OISE) of the University of Toronto and the Sustainability Office at the Toronto District School Board (TDSB). The balance of the chapter outlines a three-year qualitative case study research collaboration between the two partners, examining the involvement of pre-service and in-service teacher participants respectively. Specifically, the authors consider: “What are the learning expectations, experiences, and impacts of pre-service teachers and EcoSchools teachers involved in this TDSB/OISE collaboration?” (Inwood & Kennedy, 2019, p. 76) The three-year study, which is currently in its first year, consists of three phases. Phase 1: investigating the needs and expectations of those involved; Phase 2: investigating participants’ experiences with the integrated approach to PD; and Phase 3: examining the impacts of this PD through the teaching and learning of both pre-service and in-service teachers engaged in the collaboration. The chapter summarizes the results of online surveys and focus groups

administered to pre-service and in-service students respectively. It concludes by suggesting that such collaborative PD partnerships could “serve to inspire more university and school board partnership in ESE” (p. 80).

In the fifth chapter, “Activating Teacher Candidates in Community-Wide Environmental Education: The Pathway to Stewardship and Kinship Project,” authors **Paul Elliott**, **Cathy Dueck**, and **Jacob Rodenburg** argue that for ESE-TE “to create a truly regenerative future . . . a holistic strategy involving community collaboration with Teacher Education” (Elliott, Dueck, & Rodenburg, 2019, p. 85) is absolutely necessary. They describe a community-wide environmental education program (“Pathways”) coordinated between Trent University’s School of Education, health and environmental sectors, parents, and a broad spectrum of community groups. The authors have developed a framework of environmental education principles reflecting childhood development stages and age-appropriate “Landmarks” that teachers can monitor. They devote the balance of their chapter to describing the rollout of the Pathways pilot project involving several local community schools. In addition to being exposed to the Pathways framework in their Teacher Education program, teacher candidates have the opportunity to comment on the Pathways program, and observe where feasible, participating school involvement in the program. Although in its early days, one can readily see how such a community-wide approach to ESE provides the important programmatic, philosophical, financial, and emotional support that teacher candidates and early career teachers would benefit from as they begin to infuse their classrooms with ESE. The authors emphasize that teachers are not alone in doing this important work.

In chapter six, “Research Activities of the Canadian Standing Committee on Environmental and Sustainability Education in Teacher Education,” authors **Douglas D. Karrow** and **Patrick Howard** summarize past and forecast future research activities of the Standing Committee as an ongoing case study of its activities from 2017 to the present. The chapter consists of a history of the Standing Committee’s research activities, a literature review comparing the Standing Committee’s ESE-TE research with international approaches to ESE-TE research, the identification and prioritization of the Standing Committee’s future ESE-TE research agenda, and a model for developing a research agenda among Standing Committee ESE-TE stakeholders. The authors begin by providing a history of the Standing Committee from 2017 to today, highlighting specific actions that have materialized as a result of the coordinated efforts of Standing Committee members, e.g., see: <http://eseinfacultiesofed.ca/>. In their conclusion to this first section, the authors outline the specific funding for which a Working Group of the Standing Committee has been applying in order to create a Teacher Environmental and Sustainability Consortium. The second and third sections of the chapter provide a literature review of international ESE research. As there is no comparable literature review for ESE-TE research in Canada, these sections anticipate what research gaps may exist between the field and its sub-field. The

remainder of the chapter is suggestive and anticipatory of future Standing Committee research priorities. In the final section of the paper, the authors outline a model (Foster et al., 2018) for developing a consensus among Standing Community stakeholders for an ESE-TE research agenda.

And finally, in the last chapter—“Wilding Teacher Education: Responding to the Cries of Nature”—**Bob Jickling** and **Sean Blenkinsop** make a powerful argument for revisioning Teacher Education and, furthermore, education as a whole. They pose two questions at the outset to frame the discussion: *What will it take to nurture healers and restorers of the earth?* And second, *What holds us back?* Their unqualified answer to these questions comes in the form of a radically different pedagogy, or “wild pedagogy” that seeks its inspiration from the vast array of teaching/learning experiences outside and beyond formal schooling. To this end they offer tentative answers to the question asked at the outset by outlining two “Teacher Education touchstones.” The first is “Learning That is Loving, Caring, and Compassionate.” To outline this touchstone, the authors consider the first-hand experience of Arne Naess, Aldo Leopold, and Rachel Carson, who each demonstrate, in contrasting ways, how early life experiences were fundamental in developing personal care, compassion, and love. Concluding their explanation of this touchstone, the authors develop an impressive list of “intertwined traits” and their educational implications for teacher educators. A thoughtful set of ensuing questions for prospective teacher educators and teachers to consider during their daily activities as pedagogues concludes the section. The second touchstone is “Expanding the Imagination.” To develop this section, the authors explore the role of what they term “the self-limited imagination”—a “cultural constraint” making it difficult to imagine alternatives (Jickling & Blenkinsop, 2019, p. 131-132). As with the first touchstone, the authors conclude with several provocative questions for the pedagogue to consider during their daily practice. The authors conclude by arguing that a final appeal to deans of education and other leaders in the field to support “wild pedagogies” will be necessary to support teacher educators and the teachers themselves in “wilding Teacher Education.”

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field of ESE-TE and will ultimately help galvanize it as legitimate field of studies, particularly within Canadian faculties of education and, by extension, K–12 Education. We also thank Pat and Blair for their support and guidance throughout the editing and publication processes. Furthermore, without the dedicated efforts of our panel of ESE-TE reviewers (see Front Matter for a list of reviewers), the task of reviewing an initially large set of manuscripts in a timely fashion while maintaining the high publication standards of CJEE would have been unwieldy and ultimately delayed. As well, we wish to thank Sheila Karrow for her permission to use one of her paintings; she is an elementary school teacher on the islands of Haida Gwaii and a doctoral student in art education at the University of Victoria, BC. We chose this painting —entitled *Anemone*—as the image for our volume cover as it symbolizes the strong centre that we hope the ESE-TE Standing Committee will become for this work moving forward. We would also like to thank Dr. Rebecca L. Franzen for her review of “International Perspectives on the Theory and Practice of Environmental Education: A Reader,” edited by Dr. Giuliano Reis and Dr. Jeff Scott. We also wish to thank Dr. Susan Docherty-Skippen who provided superb oversight and management of the project from start to finish. From receiving manuscripts, to corresponding with authors, to assisting with editing, Susan worked tirelessly, efficiently, and knowledgeably on the project while finalizing her doctoral dissertation. What’s more, none of this would have been possible without the financial support of a graduate student assistantship provided to Susan by Brock University’s Faculty of Education. Finally, we thank the Ktunaxa people, who through the St. Eugene Mission (formerly a residential school) provided a beautiful facility and location for us to hold our Research Symposium and the EECOM conference (<https://www.steugene.ca/en/about-us-culture-heritage/>). We recognize the traditional territory of the Ktunaxa people, are inspired by their reverence for the land and its beings, and are receptive to their knowledge and teachings as antecedents to ESE-TE.

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