

Preparing Teachers for Work in a Time of Environmental Crises: A Grass-roots Response

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Abstract

Our planet faces numerous environmental threats of anthropogenic cause, including climate chaos, plastic pollution and deforestation. All of these impact biodiversity – our life support mechanism. With regard to this, Education can be said to have failed humanity and all living things by largely ignoring these issues and by being complicit in a way of living on the planet that is not sustainable. There is a growing concern that education systems are making environmental problems worse by prioritizing the preparation of young people for an unsustainable economic paradigm, and framing success in terms of economic wealth and consumption. Education should now have a crucial role to play in helping to address, minimize and mitigate the impact environmental threats while helping to build a sustainable future. Initial teacher education programmes can be seen as a driver of change in education systems so it can be argued that they should be preparing new teachers for this existentially important work. To date, however, teacher education programmes in Canada have generally done a poor job of preparing student teachers for environmental and sustainability education. This paper reviews the collaborative strategies developed and employed by a group of teacher educators in Canada who have sought to address the shortfall in environmental and sustainability education in pre-service teacher education. Their grass-roots work has drawn attention to the issue and advocated for change, both within institutions and more widely. It has also created new research opportunities and by sharing success stories significant progress in praxis has been made in recent years.

Keywords: Teacher education, sustainability

1. Introduction

Over the last two hundred years the developed world has adopted ways of living that now pose a threat to civilization, the future of our species and even the future of all life on Earth. Whilst much progress has been made in raising human life expectancy and the quality of life for the majority of people, current rates of resource exploitation are unsustainable and the resultant forms of pollution and habitat destruction threaten human health and that of all life forms.

Education systems around the world need to prioritize making young people aware of these issues whilst nurturing the skills and sense of agency they will need to help build a sustainable future in which there is “enough, for all, forever”, a term used by Charles Hopkins, the UNESCO Chair in Reorienting Education towards Sustainability [1]. Provided with this knowledge and accompanying skill set young people can have an immediate impact on habits and policies, as they engage with the adults in their lives and lobby decision-makers in their communities.

Canada is one of the wealthiest countries in the world and consequently has one of the highest per capita carbon footprints. In addition, its economy is heavily reliant on extractive industries, including fossil fuels, so the need for effective environmental and sustainability education (ESE) in Canada’s schools is both necessary and urgent. Initial teacher education offers an effective way to introduce and disseminate changes in practice in the education system as newly qualified teachers enter the teaching profession and bring new ideas and disruptive practices to the learning environment.

2. Literature Review

Student teachers have a key role to play in promoting change, since they are often committed and enthusiastic new educators with a determination to make positive contributions to the lives of young people [1], [2] and as such they represent one of the best hopes for a sustainable future [3]. They are a conduit for change in the education system by infusing novel approaches, bringing fresh perspectives and new priorities into their classrooms and the school system. Teacher educators need to encourage, support, and nurture student teachers who are ready to disrupt the status quo by re-focusing education to prioritize ESE [2]. Consequently, initial teacher education programmes should also prioritise ESE and introduce student teachers to pedagogies with which they can address sustainability issues in ways that empower young people, by giving them a sense of agency and hope [3], [5]. It is well established that an influential adult in the life of a young person can have a long-term influence on their feelings of nature-connectedness and care for their environment and the Earth as a whole [5]

and teachers are in a good position to fulfil this role as eco-mentors.

Many authors have made the case for a reformed model of teacher education that prioritizes ESE [4], [6], [7], [8], [9], [10], [11]. Bodies such as UNESCO in 2005 [12] and the Council of Ministers of Education, Canada in 2012 [13] have made more formal calls for change and the United Nations Sustainable Development Goals (sdgs.un.org/goals) recognise the importance of Quality Education. Yet, unfortunately, progress in these endeavours has proved to be slow and provisions patchy [8], [14]. Johnston [15] examined the difficulty student teachers encounter when trying to implement ESE because of its interdisciplinary nature, and Ormond et al. [16] described the challenges and resistance that student teachers experience when trying to introduce ESE themes during school placements.

Unfortunately, historically ESE has been largely neglected by teacher education programmes in Canada [8], [14], [16]. Other valid content, such as literacy and numeracy, have tended to dominate the curriculum and timetables and these priorities reinforced by student teachers' experiences during school placements. Other competing priorities also exist in Canadian pre-service teacher education, including Indigenous education, inclusive learning, differentiated instruction, digital technologies, and authentic assessment. Perhaps as a result of the pressures to address other priorities, the work being done in ESE in faculties of education has usually been marginalized and reliant on the initiative of individual faculty members or, more rarely, small teams of faculty working within an institution. The studies showed that not only was provision found to be patchy, but where a single member of faculty was responsible, precarious [14]. In many faculties of education this is still the case. Unfortunately, bringing about change in teacher education institutions is challenging because pre-service teacher education institutions can be complex and conservative organisations whose practices are difficult to change. However, since 2015, a grass-roots effort has seen a team of concerned teacher educators from across Canada collaborating to influence policy decisions, develop effective pedagogical strategies and carry out research to address this shortcoming [10]. By working together to promote local policy changes, supporting each other by sharing strategies and resources, and seeking to influence those in provincial and national decision-making positions, this group has stimulated significant progress redefining and re-focusing teacher education programmes to address sustainability. A number of research collaborations and opportunities have also emerged. This paper will highlight the range

of developments they have been responsible for instigating.

3. Body of Knowledge


Around ten years ago, a team of four teacher educators from four universities in the province of Ontario (Trent University, University of Toronto, Brock University and University of Ontario Institute of Technology [the latter now known as Ontario Tech University]), concerned by the lack of attention paid to ESE in their prospective institutions programmes, agreed to work together to improve the situation [17]. Through various individual discussions and responses to conference presentations, it quickly became clear that similar challenges were being faced by colleagues in all faculties of education, not only in the province of Ontario, but across Canada. In response to this finding, the group organised a National Roundtable conference that was held in June 2016 at Trent University in Peterborough, Ontario. The three-day conference attracted around eighty educators from across Canada, plus two from Wisconsin in the USA. The one thing all attendees had in common was a frustration that their initial teacher education programmes seemed oblivious to the environmental crises facing humanity and the planet. One outcome of the conference was an action plan setting out a strategy to try and address the situation. The plan had four aims. The first aim was to establish a national organization to support teacher educators in ESE work. Rather than create a free-standing organization from scratch, which would have been complex and time consuming, various potential partner organisations for the work were considered. Eventually, the Environmental and Sustainability in Teacher Education (ESE-TE) group was established [21], led by a new standing committee of the Canadian Network for Environmental Education and Communication (EECOM) [22]. The link with EECOM, an established NGO with over thirty years' experience and charitable status, enables funding to be sought from charitable sources as well as academic, which was an important consideration. The other points in the action plan were to carry out a new, up-to-date national assessment of the state of ESE in teacher education so that the scale of the problem could be better understood; to develop practical supports for teacher educators and to advocate for the crucial importance of ESE with bodies that determine teacher education policies. On this last point, it should be noted that responsibility for education is devolved to the provinces in Canada, so most of the bodies with policy-making powers operate at the provincial rather than national level, making this a more complex challenge.

In terms of research, group members have carried out a number of knowledge mobilization projects including editing a book in collaboration with the Canadian Association of Teacher Education (CATE) [18]. In response to one of the action points generated at the National Roundtable, a cross-country team conducted a nation-wide survey of current practice in teacher education programmes. This survey confirmed a picture of patchy provision that was largely dependent on the commitment of small numbers of colleagues [19]. While the findings were disappointing, they were not unexpected and served to further strengthen the resolve of members to press for policy changes and promote awareness of the role that ESE should be playing in initial teacher education. As the voice and presence of the group grew, it was invited to edit a special edition of the Canadian Journal of Environmental Education [23], a volume subsequently published in 2020. Members of the group have also organised three successful biennial research symposia that have promoted the sharing of work in ESE: the first in British Columbia in 2018; then, because of the pandemic, on-line in 2021; and in Ontario in 2023. There are also numerous smaller projects, articles and book chapters spawned by connections made between colleagues within the organisation.

September 2021 saw a team of ESE-TE members launch a national certificate E-course as a way to reach student teachers in those faculties not yet addressing the need for work in the area of sustainability education. A flyer inviting participation is shown in Figure 1. The course included a small registration fee to cover costs of employing a coordinator and providing guest speakers with honoraria. It involved a series of eight synchronous on-line workshops provided by a range of experts from across Canada. Topics addressed in the workshops include nature-based learning; inquiry and place-based learning; equity, inclusion and ecojustice; and hope, action and agency; and Indigenous ways of knowing. The interface between ESE and Indigenous education is a critical one in a country such as Canada that is still coming to terms with its colonial legacy and the need to address truth and reconciliation. It is also important because in many ways ESE and Indigenous education are interdependent and inter-related given the Indigenous connection to the Land and the ecological content of many traditional teachings. In addition to attending the synchronous workshop sessions, participating student teachers also had to complete a series of readings and associated tasks, maintain a reflective journal and carry out collaborative research projects that they then presented to their peers in the final workshop session. The course gave student teachers an unusual opportunity to meet and work with

people from other institutions and provinces across this vast country.

The pilot course in 2021-22 proved successful, and so it ran for a second year in 2022-23. Feedback was sought from participants and this is being analysed as part of an action research study. Now there are plans to run it again in 2022-23 and funding has been obtained for a follow on course, in collaboration with an organization called Natural Curiosity [24], for those wishing to extend their learning. We believe it is the only online course for student teachers that is available across Canada, so it also serves as a potential model for E-courses in other aspects of teacher education.



Interested in how new educators can contribute to an equitable, just and sustainable future? Want to learn practical ways to inspire connections to nature, ecojustice & sustainability? Join students from teacher education programs across Canada to explore the principles & practices of **Environmental & Sustainability Education (ESE)** in this national E-course. Learn from ESE experts, connect with educators engaged in ESE, and enhance your journey into teaching!

Overview: This non-credit course is open to post-secondary students learning to be K-12 teachers & Early Childhood Educators who are registered in Canadian teacher education programs in 2022-23. This course is led by [ESE experts](#) from across Canada, and sponsored by [EECOM](#), Canada's only national Environment Education network. It is offered online through synchronous and asynchronous learning. A certificate & EECOM membership is awarded to those who successfully complete the course.

Course Details and Meeting Dates: Check out the [FAQ](#)

Registration opens Sept. 6 and ends Sept. 19, 2022. [Register here](#)

Questions: Dr. Erin Sperling erin.sperling@utoronto.ca






Figure 1. Flyer for the national e-course in environmental and sustainability education

Advocacy work to raise the profile of ESE in teacher education programmes received a boost in 2018 when the Association of Canadian Deans of Education (ACDE) invited members of our group to make a presentation at a meeting of deans from across Canada in Montreal in October of that year. In consequence, the following year the ACDE issued a 'Statement of Commitment' which included the following:

- We commit to processes of relationship building and engagement with the local communities to which we belong, beginning with Indigenous peoples.
- We commit to acting in ways that add to the equitable and sustainable future of the planet.
- Within our own Faculties, Colleges, Schools, Departments, and wider universities, we commit to reducing our environmental impact.
- We commit to supporting each other within ACDE to transform our practices in ways that add to the equitable and sustainable future of the planet, through reporting and sharing challenges and good practices.

The Statement of Commitment was intended as an interim measure with the intention of going on to develop a fuller policy document. Progress in this work was delayed then by the need to respond to the practical challenges posed by the COVID-19 pandemic. However, in April 2022, the ACDE launched their *Accord on Education for a Sustainable Future* [20]. This policy document was produced in response to advocacy by ESE-TE, several members of whom were invited to join the writing team as co-authors. The publication of this document represented a major advance and it should have an impact in initial teacher education programmes across Canada as it is intended to steer planning in faculties of education. To mark the first anniversary of the Accord's publication, ESE-TE worked with ACDE to host a panel meeting to envisage and discuss ways to implement it. This panel discussion was held the annual meeting of the Canadian Society for Studies in Education held at York University, Toronto in May 2023.

4. Conclusion

The work of ESE-TE continues and serves as an example of what can be achieved by a small group of individuals working collaboratively across institutions. By sharing ideas and strategizing together it has been possible to stimulate far more extensive changes in practice than any individual could have achieved on their own. The environmental threats that we face are so severe that the benefits of inter-institution collaboration far outweighed any thoughts of institutional rivalries. In addition, working with like-minded colleagues on a project about which we are all passionate has given us hope for the future and generated some long-term friendships. We therefore encourage teacher educators in other countries to work together to transform teacher education programmes

into ones that recognise the challenges we all face and to embrace the opportunities presented by education for a sustainable future. We encourage colleagues elsewhere to share strategies that have succeeded in promoting ESE in teacher education and to enter into international collaborations. Humanity and the planet need all education systems to work towards the common goals of sustainability. Young people are the future, and their teachers have a responsibility to help prepare them for the realities of that future; teacher educators need to prepare teachers for this role.

5. References

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