

Pathways, Philosophies, and Pedagogies: Conversations with Teacher Educators About Place-Based Education

Janet McVittie, Geoffrey Webber, Dianne Miller, & Laurie Hellsten, University of Saskatchewan, Canada

Abstract

Place-based education (PBE) promises greater social and ecological justice at a time of great planetary need. This paper explores the experiences and beliefs of eight teacher educators from Canadian teacher education faculties who were invited to give their perspectives on PBE as they theorize and deliver it in their teacher education programs. Analysis of their interviews identified the participants' pathways to PBE, their terminologies for PBE, their understanding of PBE's purposes, their pedagogical practices, their sense of the structures (systemic attitudes and administrative supports or exigencies) that affect PBE, and their integration of Indigenous knowledges of place. The participants demonstrate a deep philosophical approach to place that could enhance environmental and perhaps Indigenous education more broadly.

Résumé

À une époque où les besoins planétaires sont criants, l'éducation axée sur les réalités locales pave la voie à une plus grande justice sociale et écologique. Le présent article explore les expériences et convictions de huit formateurs qui enseignent dans des facultés d'éducation canadiennes; ils ont été invités à expliquer leur conception de l'éducation axée sur les réalités locales et la manière dont cette notion est abordée dans les programmes de formation. L'analyse de ces entrevues a permis de comprendre l'approche des participants, la terminologie qu'ils utilisent pour définir l'éducation axée sur les réalités locales, leur vision des objectifs poursuivis, leurs pratiques pédagogiques, leur perception des structures (attitudes systémiques et mesures de soutien ou exigences administratives) qui influencent ce type d'éducation, ainsi que leur intégration des connaissances autochtones sur les réalités locales. L'approche philosophique réfléchie rapportée par les participants pourrait bonifier l'éducation à l'environnement et peut-être, de manière plus générale, l'éducation autochtone.

Keywords: place-based education, teacher education, Indigenous knowledges, environmental education, education for sustainability

Mots-clés : éducation axée sur les réalités locales, formation des enseignants, savoirs autochtones, éducation à l'environnement, éducation au développement durable

Introduction: Place-Based Education and Teacher Education

As environmental degradation threatens the ongoing existence of humanity and persistent inequities in education contribute to widening economic disparities, re-evaluating the purpose and orientation of schooling is urgent. However, what is more likely to be evaluated with increasing frequency (as noted by Broadfoot, 1996; Gruenewald, 2003; Webber & Miller, 2016) is student performance on a narrow range of measures, mostly related to literacy and numeracy. Teacher performance is subsequently evaluated on how well their students do on standardized tests. These achievement standards are typically separated from local contexts and wider social and ecological concerns. While acknowledging an increasing corporate orientation to schooling and technical rational approaches to learning, as educators in an institution of teacher education, we are interested in promoting life-affirming pedagogies and practices that engage teacher candidates in the big questions that encourage them to become lifelong learners able to transform the current system of education. Advocates for place-based education (PBE), such as the participants in this study, argue that a re-imagining of teacher education must start with foundational inquiries: 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 in relation to the local environment in which one is embedded? These are questions that concern us, and drive us to investigate how PBE is being taken up in teacher education across Canada.

The term “place-based education” entered the education lexicon in the late 1990s. Although it was first introduced within environmental education (EE), it was quickly taken up by the Rural Trust in the United States (Smith & Sobel, 2010) to encourage students to revitalize their local communities (Haas & Nachtigal, 1998; Theobald, 1997). Gruenewald’s (2003) pivotal paper invited teachers to include critical pedagogy regarding social justice issues alongside the environmental emphasis that had, until then, dominated PBE. He asserted: “Place . . . foregrounds a narrative of local and regional politics that is attuned to the particularities of where people actually live, and that is connected to global development trends that impact local places” (p. 3). This foundational understanding of place is one we use throughout this paper: A place is any area within the local community that supports student learning about their worlds.

Social and environmental injustices exist in place. Gruenewald (2003) remarked that there was a greater tendency for urban teachers than for rural teachers to take up critical pedagogies that address social injustices. Although there were examples of urban programs that integrated environmental concerns, and of rural programs that took up critical pedagogies for social justice, he noted that these were exceptions. Both goals—social justice and ecological care—are needed in both rural and urban contexts. Framing his critical approach to PBE as decolonization and reinhabitation, he promoted students “learning to recognize the disruption and injury [to place] and to address their causes” (p. 9), thereby working to live well in their places. Similarly, Calderon (2014) noted

that taking up a critical pedagogy of place offered promise for addressing Indigenous issues. In some manifestations, PBE resonates with Indigenous ways of teaching and learning through its focus on community and relationships with the land (Sutherland & Swayze, 2012). However, Tuck, McKenzie, and McCoy (2014) argued, “though earnest in attempts to acknowledge colonial histories of particular places, the place-based and broader environmental education literature has replicated some of the very problematic assumptions and imperatives of settler colonialism” (p. 15). Drawing on the discourse of settler colonialism, Tuck et al. described PBE as a form of colonization, indicating how settler colonialism works by making Indigenous land into settlers’ property. In lieu of PBE, Tuck et al. offered a direction for land education: “land education calls into question educational practices and theories that justify settler occupation of stolen land, or encourage the replacement of Indigenous peoples and relations to land with settlers and relations to property” (p. 8). It would seem that PBE and land-based education are built on different ontologies, with PBE emerging from Euro-American ontology and land-based education coming out of Indigenous relational ontology.

Seawright (2014) classified PBE as either liberal (e.g., focussed on individual connection to community); critical (focussed on disruption of the status quo as advocated by scholars such as Gruenewald [2003] and Calderon [2014]); or as situated in Indigenous epistemologies (Cajete, 2005; Coulthard, 2010; Deloria, 2001; Seawright, 2014; Simpson, 2011, 2014). The latter is most often associated with land-based education, which gives primacy not only to relationships with all beings but also to learning from the land (see McCoy, 2014; Paperson, 2014; Simpson, 2011, 2014; Tuck et al., 2014). However, Seawright included land-based education under the general category of PBE, despite Tuck et al.’s dismissal of PBE.

While researchers such as Greenwood (2010a) examined how teacher education programs can generally take up PBE, and Azano and Stewart (2016) explored teacher education courses that focus on place-consciousness, minimal research to date has investigated what teacher education programs do in relation to PBE. Webber and Miller (2016) found very little that specifically addressed PBE within the teacher education literature and noted that Canadian teacher education programs, in general, are organized around disciplinary subject matter and methods of teaching in response to and further entrenched by provincial certification requirements. Integrated, interdisciplinary, experiential, and inquiry-based approaches to teaching and learning—hallmarks of PBE—are difficult to incorporate in such a regimented system. A further difficulty is that PBE encompasses, or is associated closely with, a broad range of educational orientations and practices: rural education, outdoor education, EE, land-based education, community education, service learning, and so on (Greenwood, 2010b; Webber, 2017). It is therefore difficult to assess how PBE is taken up in teacher education programs.

While our interest is primarily in growing the capacity of teacher education and PBE to help people learn to live well in their environments, we note that an evaluation of over 100 American schools with place-based programs concluded that “place-based education fosters students’ connections to place and creates vibrant partnerships between schools and communities. It boosts student achievement and improves environmental, social, and economic vitality” (PEEC, 2010, para. 5; see also Howley, Howley, Camper, & Perko, 2011; Powers, 2004; Smith & Sobel, 2010; Sobel, 2004). Notably, schools with place-based programs meet or exceed state-mandated standards in the United States (Demarest, 2015). There exists relatively little research into the state of PBE in formal education programs in Canada.

PBE has the capacity to support students to take environmental action and work toward social justice for marginalized peoples. It has the potential to address issues of reconciliation with Indigenous peoples consistent with the Truth and Reconciliation Commission’s Calls to Action (Truth and Reconciliation Commission of Canada, 2015). We are interested in how Canadian teacher educators are taking up this work, 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. Our research is a preliminary investigation into what Canadian teacher education programs do with respect to PBE and offers the diverse perspectives of teacher educators interested in further animation of the field.

We first address the methods of the research, then present a summary and analysis of the interviews, which helped us understand how some Canadian teacher educators are taking up this work in teacher education programs. Although participants were not specifically questioned about the integration of Indigenous knowledges of place, for some participants their relationship to the original inhabitants was an important aspect of their work. We highlight these Indigenous connections because they align with the need to address Indigenous sovereignty when teachers consider what place means to them and to their students. The experiences of all these teacher educators contribute to a richer understanding of PBE, which can then influence and support Canadian teacher educators in both undergraduate and graduate teaching programs, and in turn will influence the next generation of teachers, school leaders, and teacher educators.

Methods

This paper emerges from a larger mixed methods research project that aimed to understand the current state of PBE in Canadian teacher education programs. For the initial part of the project, we surveyed champions of Place-Based Education. Faculty members were identified through snowball sampling: We invited faculty whom we knew were involved in PBE, and those whom they

believed were champions of PBE, to take the survey. Those surveyed were invited to participate in follow-up interviews, and eight agreed. This paper emerges from the interviews. Participants were sent the questions in advance, and the interviews were conducted individually or in small focus groups by one of three researchers through video conferencing during the summer of 2017.

All participants have been assigned pseudonyms for the purposes of this paper. Alex and Brady were interviewed individually (Transcripts 1 and 2, respectively); Charlie sent an email response (Transcript 3); Dana, Everly, and Finlay were interviewed together (Transcript 4); and Genoa and Hayden were interviewed together (Transcript 5). As much as possible, identifying information regarding the participants has been removed; however, those who work in the field of environmental or place-based teacher education in Canada may recognize some participants; fortunately, participants noted they were not concerned about anonymity. Participants were invited to correct and revise the transcripts for accuracy.

The interviews were qualitative, semi-structured, and analyzed following Braun and Clarke's (2006) recommendations. The conversations reflected the diverse interests and backgrounds of the members of each group. After transcription and verification, the interviews were coded. Throughout the coding process, we used constant comparison (Kenny & Fourey, 2014): when we found a code in one interview, we went back to see if it had been present in prior interviews we had read, and we were sensitive to it appearing in future interviews. We then took the most similar codes and put them into categories. In the following section, we delineate the categories we found: the participants' pathways to PBE; terminologies for PBE; purposes for PBE; pedagogical practices used in PBE; and structures in education and in society that affected faculty ability to incorporate PBE into their teacher education programs. We were alert to instances where participants discussed the integration of Indigenous knowledges of place, which further clarified and animated our interest in its relationship to PBE. In our conclusion we address the question of whether PBE, EE, and Indigenous education might be usefully linked in teacher education programs in Canada. We argue that taking a philosophical approach to PBE is a powerful strategy for supporting teachers in taking up EE and Indigenous knowledges.

The Participants

The participants taught and conducted research in faculties of education in Canadian post-secondary institutions from a variety of regions in Canada. Six of the eight participants were hired in subject area disciplines; the other two were hired for their environmental expertise, one in PBE, and the other in EE specifically. Two worked primarily in graduate education.

Pseudonym	Transcript	Province or region of country	Subject area	Research Interests
Alex	1	Maritimes	mathematics	21 st Century Learning, Assessment
Brady	2	Prairies	English	Indigenous education, Curriculum Theory
Charlie	3	Maritimes	English	PBE, bioregionalism, Education for Sustainability
Dana	4	ON	science	EE
Everly	4	ON	science	EE, Land-based Education, PBE
Finlay	4	ON	art	EE
Genoa	5	ON	EE	PBE
Hayden	5	BC	EE	EE

Table 1 Participant Profiles

Findings

Participants' Pathways to PBE

For six of the participants, EE was the pathway to PBE, which fits with the genesis of PBE (Smith & Sobel, 2010). As they discussed their interests and research areas, four specifically noted research in EE, with these four and others mentioning bioregionalism, sustainability, and place-conscious education—all of which are connected to EE. Only two participants did not mention EE as a research area. Brady, while eschewing the moniker PBE, noted: “Curriculum as wayfinding takes human beings as newcomers to these places with the newcomers’ responsibility to learn from the places and their inhabitants on how to best live in these places” (Transcript 2, p.1). Her focus on learning from the land, and from the people who had sustained themselves there, suggested an interest in EE, but she did not use this term. Alex, on the other hand, stated she researched 21st Century Learning which, as described in the Framework for 21st Century Learning (n.d.), suggests the skills required for the 21st century are creativity, collaboration, and innovation.

All participants noted taking their teacher candidates to “natural environments,” but also, over half the participants identified PBE locations as any place outside of the classroom, natural or built, where student learning might be enhanced. This practice fits with the PBE literature, which emphasizes learning in local places to support students in developing knowledge of themselves, their history, their culture, and of the ecological and social justice issues in their

communities (e.g., Smith, 2002; Smith & Sobel, 2010). The six participants who were subject area specialists were able to draw EE issues and sometimes Indigenous issues into their teaching of their subject area by taking their students to various locations outside of university classrooms.

The ease with which EE could be included in subject disciplines was noted by most of the participants, with Dana wondering how to entice her colleagues into undertaking the practice of taking students out into the local environment. On the other hand, several noted that subject area silos were competition for the creation of courses in EE and PBE.

The pathways considered here are only those of our select sample; it is likely that other PBE practitioners came to the field through other pathways.

Participants' Choices of Terminology

The elasticity of the term PBE is recognized in the literature with community education, outdoor education, adventure education, service learning, and so on, all coming loosely under the umbrella of PBE (Furman & Gruenewald, 2004; Greenwood, 2010b; Webber, 2017). Not all eight champions of PBE who agreed to be interviewed used the term PBE to describe their work, with Brady saying that she did not draw on PBE literature. Brady had reacted against earlier liberal (as described by Seawright, 2014, p. 560) forms of PBE. In contrast to the liberal forms, her uptake of place meant:

learning to live with each other and learning to survive and learning to go on in that place, learning from the place and with other inhabitants of that place. It is a shift away from the human-centric notion of stewardship, a liberal idea of responsibility to the other. (Transcript 2, p. 1)

The other participants either connected to the term PBE through their environmental work or connected with it because they took their students to learn in local places. Charlie and Genoa were most comfortable about using the term PBE to describe their work. Genoa articulated the need for a philosophical examination of the big questions of life through getting to know and critically engaging with his place. For other participants, a variety of terms were used alongside PBE. Four of the eight participants located themselves strongly in EE, while one used the term Education for Sustainability instead of EE. Other terms that participants used were outdoor education and nature education, associating these with PBE, but not necessarily with their work.

Genoa asserted that PBE is a way to live one's life:

I think that all of my teaching, research, and outreach for the last 20 years has been focussed around the concept of place-based education. I don't see place-based education as a teaching methodology so much as I see it is a philosophical orientation toward living and learning. (Transcript 5, p. 2-3)

For Brady and Genoa, relationship to place is a philosophy of living, and thus, they believe, it is important for children to develop. One's philosophy affects one's purposes for taking up PBE.

Participants' Purposes for PBE

All participants commented on the importance of getting students out of classrooms and into the best places for learning (Sharp, 1943). They considered PBE as a way to locate teaching and learning in places other than classrooms—in places more suited to the concepts being learned, and more suited to the students doing the learning.

Alex drew on place to engage her students in relevant learning and to be creative and innovative in their math teaching practices, such that they could support 21st Century Learning in their classrooms. The focus of her teaching and research was how to resolve the need for creative and innovative people for the 21st century against the current assessment and evaluation practices which, through their narrow focus on technical aspects of literacy and numeracy, tend to limit creativity and innovation. For Alex, getting her students outside of the normal indoor classroom supported them in their creativity, innovation, and ability to collaborate.

Charlie noted the purpose of his teaching, and the program in which he taught, was sustainability education, and that there was a required undergraduate course that addressed teaching for sustainability; as well, he observed that sustainability principles were integrated across the undergraduate curriculum. Indigenous education, on the other hand, was an elective in his teacher education program. Because of the unique culture of his place, “culture, heritage, future growth, and development is at the forefront of almost everything that happens. Advocating for PBE activities, initiatives, and courses is not a hard sell here” (Transcript 3, p. 1). He identified as being a PBE researcher and teacher but noted this research was on the margins at academic conferences.

Genoa viewed the purposes of PBE in philosophical terms:

what does it mean to be where you are? What does it mean to learn in relation to the local environment that one is embedded in? So my teaching and research has always come from the perspective that the most interesting educational questions are big educational questions such as “what does it mean to be alive in the world?” (Transcript 5, p. 3)

Brady described curriculum as wayfinding (as cited earlier in this paper), and that wayfinding should support newcomers in learning from inhabitants of the land. Inhabitants, for her, meant human and other-than-human (Transcript 2, p. 1).

For Brady, as for Genoa, place was her philosophy for living and teaching. She described how she challenged students to study their places, by asking them to

dig down deep and search all the way up and go out in all the directions and to see all of those sets of relationships with that place and how it affected who they are and the kind of teacher they are and the kind of teacher they want to be. (Transcript 2, p. 8)

Everly also invited his students to inquire into their places:

I always take them out and we look at the history of the campus from a billion years ago through to the present day. And I show them evidence of the story that the land has to tell us and I talk about the Indigenous people who were on the land, and so on. We look at fossils. And I talk about the importance of understanding the stories that you can tell in the place where you're teaching. (Transcript 4, p. 2)

We see from these participants how place is fundamental to their teaching, to their lives, and to their understanding of and communicating about the value of place. They address who lived there in the past, and who is living there now, and they work to develop respectful relationships with those who live/d in those places. These participants' life philosophies are illustrated in their approaches to PBE, which lead them to particular pedagogical practices.

Participants' Choices of Pedagogical Practices Within PBE

Participants discussed a variety of pedagogical practices they used. Experiential education was specifically mentioned by only two participants, but all participants used the term "experiences" to describe students getting into and understanding place. Experiences are integral to experiential education, but they are not the only requisite; experiential education requires teachers to prepare students for, to support them during, and to facilitate the learning after the experiences (Dewey, 1938; Kolb, 1984). Brady described how experiential learning involved recognizing the need for receptiveness in students' learning:

[To] learn from the land and Elders requires the learners to be humble and . . . to open their eyes to a really different way of learning, teaching, and experiencing things and places. For this to work, there has to be a real openness to learning in the way that you're going to be taught. (Transcript 2, p. 14)

Dana connected experiences in place with holistic education, commenting on the role of emotion for student memory and its connection to hands-on learning: "And even if they go back [in memory] into a boring Grade 9 class, 10 years down the road, they'll still remember planting trees, or, whatever it was" (Transcript 4, p. 15-16).

Inquiry, where students have to find out both who they are and what their connections to the land are, was an important process to all the participants, along with, at the very least, recognizing that there were people in the land now known as Canada before settlers. Everly noted that the required Indigenous/environmental education course in his program is inquiry-based: after visiting

several locations, the instructors supported students by giving “them a range of [inquiry] topics to choose from, but they were all typical topics where there is an environmental focus, but it also needed to be place-focused and have an impact in some ways on Indigenous peoples in Canada” (Transcript 4, p. 6). Brady justified her work with students through her philosophy that they need to know the land, to learn from the land, and to learn from those that have been on that land from time immemorial.

Genoa expressed concern regarding the fracturing of PBE into pedagogical practices. He worried that PBE would be narrowly interpreted by teachers and that it would not introduce a philosophical orientation towards life, one that supported people in locating themselves in meaningful ways to history, politics, and a more caring and healthy future for their places.

PBE is taken up by the participants in this study as finding better places than classrooms for learning particular concepts, drawing on pedagogical practices that support inquiry and experiential learning, critically addressing environmental issues, and provoking creative and innovative ways of learning. All participants drew on places outside of classrooms for experiential, holistic, or inquiry learning. Most participants view PBE as a means not only to explore the purposes of formal education and teaching but also to learn how to live well in a place.

Participants' Views of Structures That Affect PBE

Every participant addressed structures that affected their ability to teach environmental issues in out of classroom locations. By structures, we mean all those institutional norms and attitudes that tend to create lines within which educators are expected to operate. Having lines can be helpful; for example, it is useful to have a safety checklist before taking children to a place, even though having to use the checklist hinders spontaneous innovations. Examples of structures that affected our participants are university policies and practices (e.g., support from either or both of their teacher education colleagues and their university administration); teacher education policies and practices (e.g., teacher candidate field experiences, provincial certification requirements); school division and ministries of education policies and practices (e.g., curricular documents, budgets); and the impact of neoliberalism on education. Interestingly, for research on PBE, only one participant noted that his community supported students and teachers teaching and learning about place: Charlie noted (as cited earlier in this paper), that PBE was not difficult to implement in his community where people valued culture, heritage, and local growth.

Almost all the participants noted support from either or both of their teacher education faculty peers and their university administration, with almost all saying that both their initiatives and the courses they created were approved, and sometimes there were even funds to support innovative teaching. Finlay summarized this best:

I've had some opportunities to do professional development with my colleagues in this area of ESE and when I do and I introduce them to notions of place-based, it's like little lightbulbs go off, you know, in their heads. . . . But again, it would go so much farther if our administrative team, our leadership team, said, "you know what—this is a fantastic idea, why don't we implement it more broadly, across the program" but, there's never been any kind of endorsement like that for it. (Transcript 4, p. 8)

Dana and Everly noted the influence that their deans had on what they could do, with Dana remarking on the struggle she had with her dean, and Everly saying: "as much as we now have a greatly supportive dean, she's new. And the dean who was in place when we were reviewing our course was less supportive and needed much more persuading to have a course" (Transcript 4, p. 5). Brady described using a "Study Tour" course that was designed to take students to exotic locales; her intention was to take students to local places; this was "such a radical idea at the time" (Transcript 2, p. 3) that it took a long time for Brady to get all the necessary approvals.

Both Finlay and Dana noted that there was support for them to create innovative and interesting courses; however, there was no uptake of systematic changes within their faculties of education. Dana said she and one colleague had been lobbying for the inclusion of environmental place-based initiatives, but "they're [colleagues and administration] quite happy for you to take students outside; they're very supportive of our initiatives if we want to do it on our own. But it's not faculty-wide" (Transcript 4, p. 7-8). Brady noted that working with faculty and teachers could be challenging because, when taking teachers and professors to places to learn, "for them to all of a sudden be in a situation where they don't know everything, where they are the learners, is challenging" (Transcript 2, p. 14).

Making spaces in teacher education programs for PBE and EE can involve competition for time within programs. Dana stated that, with 40 people teaching in her faculty, new courses on PBE competed against courses that other people championed. Similarly, Brady noted that time tabling hindered participation in PBE courses: "if they [teacher candidates] all had taken our Institute [place-based summer program] they would not be taking courses that had been set up for them by other faculty members (on language teaching and special education)" (Transcript 2, p. 4). However, almost all participants, despite some frustrations, spoke about support from colleagues, with Alex noting: "So we kind of have this nice team, and we're not necessarily explicitly place-based education, but we are complementary to each other and developing" (Transcript 1, p. 8).

Six of the eight participants explicitly noted the need to integrate Indigenous issues and perspectives into EE and PBE. Dana noted the competition, in her program, between finding space for courses addressing Indigenous education and EE; the others hoped for integration between Indigenous education and EE.

Teacher education programs involve field experiences, that is, placing teacher candidates in schools. Two participants identified that, since placements

were based on criteria that did not include exposure to PBE, teacher candidates who want to take up PBE are not necessarily mentored. This gap between theory and practice was the incentive for the eco-mentor program developed by one participant, and adopted by two other participants. These three participants had noticed that placement with current in-service classroom based teachers could hamper teacher candidates' efforts to become place-based educators.

Provincial teacher certification requirements were identified as a structure of importance, with the teacher educators wanting teacher certification boards to require some focus on EE or PBE. Teacher certification boards still require teachers to have the majority of their courses in how-to-teach in subject-specific areas, with two participants stating that new required B.Ed. courses focussed on language arts (especially for English language learners) and special education, which their provincial certification boards had added to teacher certification requirements.

Standardized testing, most often emerging from ministries of education, was also noted as interfering with the ability to teach in innovative ways, with Alex specifically noting this as a concern in her research area of 21st Century Learning. However, Alex relayed that taking students into the community or to natural areas contributed to teacher candidates learning their math in relevant and exciting ways, and supported them in developing the capacity for creativity, innovation, and collaboration. As well, research on PBE in the United States suggests that PBE can support students doing well on standardized tests (Demarest, 2015).

Participants believed that provincial ministries of education have much catching up to do to ensure that EE and sustainability education, including both ecosystem health and social justice, are required within curricular outcomes. Hayden, whose career has focussed on EE, argued for environmental issues to be integrated throughout all coursework and not conceptualized as a specific subject area. Genoa and Hayden agreed that PBE and EE were forms of critical education and should be taught in integrative ways. Hayden noted that his province had recently released all new curricula, and it was very difficult to find anything relating to environment or sustainability education. A change in curricular outcomes that specifically mandated PBE would assist in normalizing the practice.

A significant structural barrier identified by the participants was neoliberalism. Neoliberalism is an approach to life and politics that suggests governments should neither be involved in the economy nor regulate industry; a fundamental neoliberal belief is that individuals work for rewards. The subsequent deregulation of corporations in most countries around the world has affected environmental legislation and worker rights, despite the neoliberal belief that the free market will ensure corporations act responsibly (Orlowski, 2015). Neoliberalism has led to reducing funding to public institutions (including education) and increasing standardized measurements for student and teacher performance across Canada (Orlowski, 2015). This has led to the issues that Alex identified,

with standardized tests interfering with the concepts promoted in 21st Century Learning. Hayden told the story of a graduate student teaching in an elite urban school who, when introducing concepts or activities for environmental health, was challenged by some of the students who wondered how this would fit on their resumés.

Participants' Views of Indigenous Knowledges of Place

In keeping with taking up the Truth and Reconciliation Commission Calls to Action (2015), we explored the participants' views of settler colonialism and Indigenous place. We found that most participants referred in some way to Indigenous education. For example, they noted that Indigenous knowledges was important to their faculties of education, with some remarking that programs were now being or had just been developed for Indigenous students, and others remarking that courses with Indigenous content were required for all students. Brady, having had connections with Indigenous peoples from her childhood, had integrated Indigenous knowledges into all her teaching, addressing this in a deep way with the places to which she took her teacher candidates, and supporting them in learning both from the people there and from the land itself. She was able to draw on her community relationships to support her students to learn from Elders in appropriate places. Everly noted that, in his teacher education program, they had managed to integrate Indigenous knowledges of land with EE in one required course that includes several visits to the land. In the other universities, education for Indigenous students was separated from EE, with four of the participants noting these separate Indigenous programs were land-based.

Nonetheless, there are complexities that emerge between PBE and land-based education programs. As noted in the introduction, Tuck et al. (2014) described PBE as a form of colonization, indicating how settler colonialism makes Indigenous land into property. Bang et al. (2014) stated, in opposition to the idea of land as property: "Land is, therefore we are" (p. 45). PBE has the potential to provide a rich philosophy to undergird teacher education in Canada. But, teachers need to more deliberately address land within an Indigenous world view to unlock this potential. The substantially different belief systems about land (as relational, and therefore not owned by humans) and place (human attachment) is a challenge that place-based educators must continue to address.

Conclusion

There is public resistance to the research showing climate change is happening. In the face of this, the Intergovernmental Panel on Climate Change 2018 report cited 6,000 works by scientists and concluded that: we are now in a climate crisis with only 11 years remaining to reduce our greenhouse gases to

below-2010 levels; and we only have until 2050 to be at zero emissions. Not only do many resist the compelling evidence for climate change, there is also general ignorance regarding the research that shows the planet is losing biodiversity at anywhere from 1,000 (Centre for Biological Diversity, 2018) to 10,000 (World Wildlife Federation, 2018) times what would be a normal background rate. These issues are compounded when we acknowledge the interrelatedness of social and ecological justice issues. More than ever, we must take action; we must educate children and the general public about the need for change. Indigenous peoples, as Dei (2000) noted, knew how to live sustainably on the lands they occupied. By integrating Indigenous knowledges into PBE, both EE and social justice can be addressed. Most of the participants argued for the need to integrate Indigenous knowledges into their EE, with some already doing this. As Brady noted, we have much to learn about our places from those who have lived there sustainably for a long time.

From the work that the various participants are doing, some clear suggestions have emerged. Although the participants were often frustrated with the lack of systematic supports for environmental and sustainability education in their institutions, they all did find support. Importantly, some faculty had looked beyond their institutions and had worked together “up the chain” to create change. For example, the eco-mentor weekend workshop program upheld connections with school divisions while also supporting teacher candidate learning. As a starting point for changing certification requirements, place-based teacher educators can work toward creating advanced qualification certificates in PBE through provincial teacher certification bodies. As well, integrating environment and Indigenous knowledges into different subject area silos, through PBE, is another way to move forward. This can be supported by working with teacher educator colleagues and with provincial curriculum writers.

The participants showed commonalities spanning the field of teacher education to include the promotion of integrated, interdisciplinary, and inquiry-based programming connecting students to their places. A call to heal our places focusses our gaze on the essential links between the fields of EE, Indigenous education, and critical pedagogies, as referenced in the literature and discussed by participants as major pathways to (and as emerging out of) PBE.

Clearly, more work needs to be done to integrate EE with Indigenous knowledges of place (Seawright, 2014; Simpson, 2011, 2014), with Dei (2000) pointing out that the Indigenous knowledges of a place closely align with sustainability. PBE offers a philosophical approach to connecting teacher candidates to the place where they are studying or to their home places, and to the Indigenous knowledges there.

The perspectives of the teacher educators who participated in our study offer a glimpse into the diverse ways PBE is taken up in teacher education programs in Canada. Their work suggests crucial linkages can be made between PBE, EE, and Indigenous education. They advocate a reorientation to education

that grapples with the big 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? Such questions are a starting point for healing the people and places often marginalized by a rigidly structured, fractured education system. We thank those teacher educators naming and living alternative ways forward, noting how they remain open to learning from and with their places.

Notes on Contributors

Janet McVittie is a faculty member in Educational Foundations at the College of Education, University of Saskatchewan. She researches and teaches environmental and anti-oppressive education, with a focus on place-based and land-based education. Her most recent presentations and publications address the integration of these four topics. Contact: Janet.McVittie@usask.ca

Geoff Webber completed an MEd with the Department of Educational Foundations at the University of Saskatchewan in 2017. His thesis examined Place-Based Education. He lives in Calgary, AB and works for a local non-profit. Contact: wgeoffre@ualberta.ca

Dianne Miller is a Professor of Educational Foundations at the College of Education, University of Saskatchewan. She has taught teacher candidates that the ‘community is the classroom’ for several years through a course entitled “Pedagogies of Place.” Her current research focuses on school and community gardens and school food. Contact: Dianne.Miller@usask.ca

Laurie-Ann Hellsten is a Professor of Educational Psychology and Special Education at the College of Education, University of Saskatchewan. Her research interests include instrument development, analysis and validation, program evaluation, and the application of modern quantitative and mixed methods techniques within the domains of education, health, and health promotion. Contact: Laurie.Hellsten@usask.ca

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