



Environmental Learning: How BC Teachers Find and Implement Resources

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INTRODUCTION TO THE AUTHOR AND THE RESEARCH CONTEXT

The research guiding this article is influenced by my experience in science, education, and the environment. My undergraduate degree in the biological sciences, combined with my laboratory and fieldwork in environmental-focused research, contributed to a profound curiosity of interactions and interconnections on ecological systems at a local and global level. Teaching experience at elementary, secondary, and post-secondary levels, along with leading teacher professional development across the province, allowed me relate my applied experience to curriculum and courses that were otherwise disconnected from real-world contexts and systems-level understanding of interactions. The combined influence of my graduate-level-coursework, my research on teachers' practices, and the current worldwide focus on education transformation, have caused me to think deeply about the purpose and design of our education system. A re-visioning is integral to facilitate improved student and teacher engagement. This can be achieved through a focus on learning environments that optimize learning by engaging students in meaningful contexts that contribute to the current and future well-being of themselves, other people, other life forms, and the natural systems that sustain us.

The research that informs this article focuses how BC teachers incorporate environmental education into their practice. Through my investigation on how they used a specific suite of resources that were developed to support the implementation of environmental education, I learned how environmental educators serve as important role models for education transformation: by using integrated and interdisciplinary approaches, connecting curriculum to the real world, and enabling participation in hands-on action-based projects, with a vision of teaching students how to live in the world in a manner that is sustainable for future generations.

WHAT ENVIRONMENTAL EDUCATORS TEACH US ABOUT RESOURCE USE AND IMPLEMENTATION

The historical influence of key international documents including the *Tbilisi Declaration*, *Brundtland Report*, and *Agenda 21* informed the BC's strategy for implementation of environmental education (EE) into the formal education system. In 1995, the collaborative work of the BCTF Task Force, EEPsA, and the Ministry of Environment Task Forces culminated in the publication of BC's first EE framework. *Environmental Concepts in the Classroom* (ECC) was developed to "assist teachers in all subjects and grades to integrate environmental concepts into their daily lesson plans" (BC Ministry of Education, 1995, p. 3). The ECC



outlined six guiding principles for integrating EE into the classroom: direct experience with the environment, responsible actions, understanding of complex systems that sustain life, consequences of human decisions and actions, aesthetic appreciation of the environment, and environmental ethics (BC Ministry of Education, 1995).

In 2007, a revised three-part resource expanded on the six principles outlined in the ECC. The *Environmental Learning and Experience* (ELE) Guide provided a theoretical framework for integration, based on the *experiential learning cycle*. The Curriculum Maps connected complexity, aesthetics, responsibility, and ethics across the K-12 curricula, assisting teachers to infuse or integrate EE into their lesson plans. The videos and professional development workshops assisted with implementation.

Drawing on research focused on how BC K-12 teachers incorporate environmental learning into their practice, this article examines how teachers find and use resources, in particular, the ELE suite of resources. The research methodology followed a mixed-method design with a 15-minute online survey sent out by environmental-related organizations to their teacher-members. From the 102 responses, data was analyzed using descriptive (i.e., frequencies and percentages) and inferential statistics (i.e., analysis of variance) to identify patterns and relationships. From the survey, 12 elementary and secondary teachers from a diversity of BC school districts were selected to follow up in a 30-minute interview, allowing them to expand on their practices. Interviews were recorded, transcribed, and analyzed using coding and grounded theory method.

The BC K-12 teachers involved in this research self-identified as environmental educators and were already implementing EE into their teaching practice. They thought EE should be integrated into all subject areas and confidently incorporated it into their practices in many elementary and secondary school subjects primarily through infusion and integration. They unanimously identified the *outdoor* experience as an integral component of EE.

Teachers communicated a strongly articulated understanding of EE that connected their rationale, philosophy, and specific pedagogical practices. Their rationale followed an ecological worldview, which drew meaningful connections to the curriculum and emphasized social responsibility. Their practices included issue-based discussions, hands-on activities, and action-based projects.

Most teachers were aware of the ELE resources, with just over half using them. Those who used the resources did so to design lesson plans, apply an interdisciplinary approach to their teaching, and justify their practice. Of the three resources, teachers found the Interdisciplinary Guide the most helpful to their teaching practice. Conversely, those who were aware of the ELE resources but did not use them, found them unhelpful to their practice for the following reasons: they would be integrating EE regardless, they found the resource design impractical, and it did not easily support implementation and evaluation. Teachers discovered the ELE through professional associations that require memberships, as well as other EE-related organizations. In addition, some found these resources through professional development activities, university courses, colleagues, and online.

The innovative and engaging practices of this group of these environmental educators enabled them to teach a non-core interdisciplinary subject in our current education system. Whether they used the ELE resources or not, their practices offer valuable insight to those who are designing resources and professional



development for environmental learning, and for re-visioning our education system:

1. Update resources to include infusion, integrated, and interdisciplinary designs for elementary and secondary classrooms, in all subject areas. Learning contexts should include both indoor and outdoor settings.
2. Orient online and face-to-face professional development toward these three main approaches in both indoor and outdoor settings. Professional development should also address the formation of teacher identity, how teacher rationale and philosophy influence practice, and demonstrate engaging teaching and learning models.
3. Identify and partner with relevant stakeholders to design and distribute resources so they reflect the needs of, and are accessed by, formal and informal educators. These include community organizations, places, and activities from a local to an international context.
4. Participate in provincial, national, and international education transformation activities. Environmental educators are already implementing some of the best practices to optimize student learning and engagement, and have much to offer, especially in the design of curriculum and assessment, learning environments, and the implementation of innovative practices – all of which are key in the worldwide re-orientation toward education in the 21st century.

*Any views expressed in this article are those of the author, and do not necessarily represent the views of the Government of British Columbia.