Environmental Learning: How BC Teachers Find and Use Resources

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ABSTRACT

Environmental educators draw from a variety of sources to guide their practice, from local organizations and venues, to print and online resources. This article examines how teachers find and use resources to inform their teaching practice. It draws from key findings from research exploring the practices of BC teachers and how they used a specific suite of resources that were developed to support the implementation of environmental education (Cirkony, 2012). These resources include the Environmental Learning and Experience (ELE) Interdisciplinary Guide, Curriculum Maps, and Videos. The results demonstrated that 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. The findings are of interest to those who are looking to implement environmental learning in their teaching practice, or to develop related resources and professional development for teachers.

REGIONAL CENTRE OF EXPERTISE ON EDUCATION FOR SUSTAINABLE DEVELOPMENT

ACKNOWLEDGED BY

UNITED NATIONS UNIVERSITY

Volume (1) 2015

HISTORY OF ENVIRONMENTAL EDUCATION

The emergence of environmental education (EE) and its suggested interdisciplinary approach had strong concurrent and complementary foundations both internationally and within the province of BC. The term *environmental education* was first published in 1968 by Clarence Schoenfeld (Hammond, 1998). One year later, Bill Stapp described its purpose: "Environmental education is aimed at producing a citizenry that is knowledgeable concerning the biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work toward their solutions" (Stapp, 1969, p. 34).

As a key figure in this emerging field, Stapp co-chaired the 1972 UN Conference on the Human Environment in Sweden, a time when interest in environmental issues was gaining momentum (C. Hopkins, personal communication, January 13, 2012; M. McClaren, personal communication, January 27, 2012). The conference marked the first time government leaders acknowledged the "global nature of environmental problems" (BCRTEE, 1993, p. 21). One of the key recommendations from the resulting Stockholm Declaration was to develop an International EE Programme, and Stapp was appointed to this

statement on EE that served as a framework and guiding principles, and circulated it around the world for input (C. Hopkins, personal communication, January 13, 2012; Palmer, 1998; UNESCO, 1978).

The final draft was presented in 1977 at the first Intergovernmental Conference on EE, as *The Tbilisi Declaration*, which contained the role, objectives, and characteristics of EE (UNESCO, 1978). The document states: "The ultimate aim of environmental education is to enable people to understand the complexities of the environment and the need for nations to adapt their activities and pursue their development in ways which are harmonious with the environment." (UNESCO, 1978, p. 12).

The Tbilisi Declaration is considered "the seminal influence on the development of environmental education policies around the globe" (Palmer, 1998, p. 8; UNESCO, 1977). The guiding principles outlined in the Declaration propose that EE: engage all ages, be a lifelong process, be interdisciplinary, and focus on local and global issues, in the present and the future. The Declaration assigns a specific role for both public and private, formal and informal education systems in EE. It guided the development of EE programs worldwide for the next 20 years, including those in Canada and BC.

While EE was emerging on the international front, BC already had an established community in outdoor education and recreation, which offered a variety of outdoor experiences to students (M. McClaren, personal communication, January 27, 2012; McClaren & Ramsey, 1972). EE was seen as a way to expand the idea of outdoor education to include students' urban experiences (H. Walker, personal communication, January 17, 2012; M. McClaren, personal communication, January 27, 2012).

In 1971, a group of BC educators requested the British Columbia Teacher's Federation to set up a Task Force on Environmental Education (H. Walker, personal communication, January 17, 2012; M. McClaren, personal communication, January 27, 2012). The Task Force consisted of teachers, principals, university representatives, and superintendents; its purpose was to define, promote, and advocate for EE and its objectives in BC, as well as distribute resources to BC teachers (BCTF, 1971; BCTF, 1972). The Task Force suggested EE programs be interdisciplinary, developmental throughout K-12, and involve the whole community; these guidelines acted as a catalyst for a new approach to curriculum (BCTF, 1971; BCTF, 1972; H. Walker, personal communication, January 17, 2012). They were reiterated in various international documents, and

continue to influence the culture of EE in BC today. Based on a key recommendation of the Task Force, the Environmental Educators Provincial Specialists Association (EEPSA) was established in 1986, bringing together outdoor and environmental education practitioners (BCTF, 1972; M. McClaren, personal communication, January 27, 2012).

In 1991, EEPSA prepared a special report reviewing EE content in the current BC curricula and making recommendations, including the need for "a province wide curriculum assessment guide…[to] provide that framework to allow teachers to develop exciting programs that integrate goals of several subject areas" (BCTF, 1991, p. 44). This assessment guide would become BC's first EE framework, *Environmental Concepts in the Classroom* (BC Ministry of Education, 1995).

Around the same time EESPA was established, the international community continued the conversation on human impact on the environment as part of a four-year series of public meetings, known as the Brundtland Commission. This was organized by the World Commission on Environment and Development to investigate "(a) global agenda for change" (WCED, 1987, p. ix). Canada hosted one of the meetings, and followed up on recommendations from the resulting *Brundtland Report*: for the Canadian Council of Resource and Environment Ministers to establish the National Task Force of Environment and Economy (British Columbia Round Table on the Environment and the Economy [BCRTEE], 1993). The *Brundtland Report* also introduced the term, *sustainable development* (SD) and defined it as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987, p. 43). In addition, the report described the role of EE:

> Environmental education should be included in and should run throughout the other disciplines of the formal education curriculum at all levels - to foster a sense of responsibility for the state of the environment and to teach students how to monitor, protect, and improve it. (WCED, 1987, p. 113)

The new global focus on SD resulted in the emergence of *education for sustainable development* (ESD), broadly defined as "education that allows learners to acquire the skills, capacities, values and knowledge required to ensure sustainable development" (UNESCO, 2006, p. 1). Since 1987, most of the documents produced from international organizations and jurisdictions, including Canada, began referring to ESD instead of EE. Although there exists tensions in the assumptions that underlie EE and ESD, for the purpose of the research and this article, both terms are considered similar in intention. Historically, BC has used the term, *environmental education*, and more recently, *environmental learning*.

The Brundtland Report recommended both national and provincial round tables to address sustainable development (BCRTEE, 1993). In 1989, BC set up its own Task Force on Environment and Economy, also known as the *Strangway Commission* (BCFTEE, 1993). It saw the need for a role in fostering awareness of SD and also to work with Ministry of Education to develop appropriate resources (BCRTEE, 1993). In 1990, the Task Force created the BC Round Table on the Environment and Economy to increase public understanding of SD. The Round Table then set up a Public Understanding and Education Task Force which hosted a conference and a number of workshops to gather input from key stakeholders in the education community, as well as the general public, on how to introduce SD education into BC schools and universities (LSF, 1993).

Recommendations from the conference workshops supported the interdisciplinary approach, along with other guiding principles for EE: to begin EE

earliest level; make connections between human activity and the environment; understand the relationships among the environment, economy, and social systems; encourage first-hand experience with the environment; learn consensus building; link schools to local and regional communities; use resources that focus on current local and global events; address teacher training to facilitate this approach; and have schools and teachers model sustainable behaviours (BCRTEE, 1993). The Task Force also acknowledged the role EEPSA and BCTF played in establishing EE in BC's formal education system (BCRTEE, 1993).

The Inter-Ministry Working Group on EE, which included the Ministry of Education and the Ministry of Environment, recommended that EE include an integrated and multidisciplinary approach (BCRTEE, 1993). They also suggested the Ministry of Education expand its description of the *Educated Citizen* to include environmental literacy in its Year 2000 initiative, although this was never realized (BC Ministry of Education, 1989; BCRTEE, 1993).

With BC following up on the recommendations of the *Brundtland Report*, as expressed through the Ministry of Environment and the Ministry of Education, the next significant international conference would solidify steps toward implementation. The UN Conference on Environment and Development in 1992, known as the Earth Summit in Rio, was the second time world leaders came together to discuss environment and development (BCRTEE, 1993). National leaders signed the *Agenda for the 21st Century* (i.e., *Agenda 21*), which was the action plan for sustainable development (BCRTEE, 1993, p. 24; UNESCO, 1992). "Its successful implementation is first and foremost the responsibility of Governments" (UNESCO, 1992, Preamble, para. 3). Within *Agenda 21*, Chapter 36 focused on education and the reorientation of "education towards sustainable development" (UNESCO, 1992, Chapter 36, Introduction, para. 2). Members of the team that drafted Chapter 36 of Agenda 21 agreed EE alone would not be enough to support the goals of sustainable development and building a sustainable future, hence the introduction of the ESD approach (Chuck Hopkins, personal communication, January 13, 2012).

Chapter 36 emphasized the integration of EE in all disciplines, suggested that all curricula be designed to accommodate a multidisciplinary approach, and that all countries should promote and support EE (CMEC, 1999; UNESCO, 1992). The unanimous support of signatories had significant impact on the renewed worldwide focus on the environment. ESD now had the momentum EE was not able to achieve, although the principles of EE informed the development of ESD (C. Hopkins, personal communication, January 13, 2012). Canada was a signatory to this international agreement and was expected to develop a national plan for ESD. Because education is the domain of the provinces and territories, each developed their own approach to EE or ESD, often in collaboration with other governmental and non-governmental organizations within their jurisdiction (Courtney-Hall & Lott, 1999; Jarnet, 1998).

HISTORY OF THE ENVIRONMENTAL LEARNING AND EXPERIENCE RESOURCES

The historical influence of the *Tbilisi Declaration*, *Brundtland Report*, and *Agenda 21* framed the context that informed the BC's strategy for EE implementation 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 (Courtney-Hall & Lott, 1999). *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).

The document drew criticism because it did not provide relevant examples, recommend curriculum resources or instructional strategies (Courtney-Hall & Lott, 1999). Courtney-Hall and Lott (1999) also identified the lack of implementation as a significant omission: "…the Ministry has not continued an effective correspondence between practicing educators, academics, and Ministry personnel on the implementation of the guidelines" (p. 90). In fact, there was a change in provincial government during this time resulting in a change in the Ministry's direction in curriculum; additionally, the introduction of Bill 19 unionized the BCTF thereby changing its supportive role for EE (M. McClaren, personal communication, November 2, 2011).

As the EE community was working to develop the next version of ECC, BC became the first jurisdiction in North America to require that all public sector organizations, including school districts, become carbon neutral (BC Ministry of Environment, 2012, para. 1). Funding was made available to support sustainability-related initiatives across the province, including the production of videos related to the ELE guide, and the development and delivery of workshops (BC Ministry of Environment, 2012, para. 1; D. Zandvliet, personal communication, November 27, 2012).

In 2007, the ELE Guide was published. It expanded on the six principles outlined in the ECC, provided the theoretical framework for EE integration into BC's kindergarten to grade 12 (K-12) curricula, as well as complementary resources to assist with implementation (BC Ministry of Education, 2007). Both the ECC and ELE signified BC's support for an integrated or interdisciplinary approach, as opposed to EE being a stand-alone course. Complementary resources include Curriculum Maps, videos, professional development workshops, and web links that addressed some of the missing elements identified in the ECC document. Development of these resources took place through a collaborative effort of environmental educators in EEPSA, Simon Fraser University, and Royal Roads University. The BC Ministry of Education supported initial implementation by funding professional development workshops, and promoting the resources through its website, newsletters, and communication channels.

The ELE Guide uses an "experiential learning cycle model" (BC Ministry of Education, 2007, p. 9) incorporating direct experience, critical reflection, and negotiation to help students understand new concepts and experiences. The Guide also proposes the *CARE* model, where complexity, aesthetics, responsibility, and ethics are taken into consideration during the learning process to enable student to engage more deeply with environmental concepts. The Curriculum Maps connect the components of CARE across the K-12 curricula, assisting teachers to infuse or integrate EE into their lesson plans.

Both local and international contexts influenced the awareness, development, and implementation of EE in BC. Guidelines unanimously supported the following principles of EE: education is key to our sustainable future, the K-12 formal education system plays a significant role in changing attitudes and actions of students, and the approach should be of an interdisciplinary or integrated nature where EE is taught throughout all subjects and grade levels.

RESEARCH FOCUS AND METHODOLOGY

The research from which this article is derived focused on how BC K-12 teachers incorporated environmental learning into their practice, and included questions specific to how the ELE resources assisted teachers. The methodology was informed by a pragmatist rationale, followed a mixed-method design with surveys and interviews, and used descriptive and inferential statistics as well as grounded theory method to analyze results. The next section will explore each of these in depth, as well as data collection, participant selection, and data analysis for surveys and interviews.

Rationale and methodology.

The research was informed by a pragmatist rationale, which supported the research questions, methodology, design, interpretation and application of results. Pragmatism regards regards truth, meaning, and knowledge as tentative, and objectivity as an approximation of the "truth of reality" (Onwuegbuzie et al., 2009, p. 121). Similarly, it supports a constructivist approach, acknowledging the influences of the participants as well as the researcher on the final interpretation (Charmaz, 2006; Onwuegbuzie et al., 2009; Tashakkori & Teddlie, 2003). Thus, pragmatism acknowledges the variety of experiences and worldviews inherent among educators, including those of the researcher (Onwuegbuzie et al., 2009; Tashakkori & Teddlie, 2003). Pragmatism also allows for an exploration of what is *actually* taking place in the research setting, in this case, the school environment (Tashakkori & Teddlie, 2003) and encourages a practical focus for the implications of the research findings (Creswell, 2007).

Pragmatism also supports a mixed method approach combing quantitative and qualitative research to address the complex nature of teaching, thus offering a broader perspective on the results (Creswell & Plano Clark, 2011; Onwuegbuzie et al., 2009; Mason, 2006; Tashakkori & Teddlie, 2003). The mixed method approach followed an "explanatory sequential design" (Creswell & Plano Clark, 2011, p. 71) beginning with the collection and analysis of quantitative data (i.e. surveys), followed by the collection and analysis of qualitative data (i.e., interviews). The online survey captured teachers' general attitudes and experiences in teaching EE along with basic demographic information. The interviews of select survey respondents then allowed a more in-depth understanding of how they incorporated EE into their practice.

Grounded theory method informed the overall research design, including data collection and analysis of both surveys and interviews (Charmaz, 2006; Onwuegbuzie et al., 2009; Tashakkori & Teddlie, 2003). As a systematic process of "simultaneous involvement in data collection and analysis" (Charmaz, 2006, p. 5), grounded theory aims to create an explanatory *theory* of what is going on in a given social setting (Charmaz, 2006; Glaser & Strauss, 2008). It is an iterative process that compares patterns and relationships within data, thus offering the potential of generating a theory rather than a simple explanation or description (Charmaz, 2006; Glaser & Strauss, 2008; Morton, 2009).

Collecting data by surveys.

The survey included both qualitative and quantitative questions and was constructed using the Tailor Design Method to improve participation, validity, and reliability (Dillman, 2000). Key design features included a simple, user-friendly appearance, a variety of closed- and open- ended questions including ones that

were optional, with a length that allowed completion in about 15 minutes. In addition, seven individuals from the EE-field, some with a survey development and analysis background, reviewed pre-online drafts of the survey and five other individuals pilot-tested the online version (Creswell & Plano Clark, 2011; McMillan & Schumacher, 2006; Scheuren, n.d.). The survey with responses is included in Appendix A.

Six questions specifically related to the ELE Guide, Curriculum Maps, videos, and professional development resources. These questions are listed below with their numbering as they appear in the survey:

- Before doing this survey, were you aware of the "Environmental Learning and Experience" guide and/or resources? (Question 4)
- How did you find out about the ELE? Check all that apply. (Question 5)
- Do you use the ELE in your teaching practice? (Question 6)
- Describe how you use the ELE resources. Check all that apply. (Question 7)
- Which part(s) of the ELE resources are most helpful to your teaching practice? Check all that apply. (Question 8)
- Explain how these resources are helpful to your teaching practice (or not). (Question 9)

The 14-page survey was published online from November 29, 2011 to January 31st, 2012, with invitations and reminders sent out prior and during this period. The initial deadline was extended to increase the number of responses. BC K-12 environmental educators were contacted via personal email invitations as well as LISTSERVS, membership databases, eNewsletters, and websites from the following environmental education-related organizations: The Environmental Educators Provincial Specialist Association (EEPSA), the Sierra Club of BC, the Columbia Basin Environmental Education Network (CBEEN), Wild BC, Walking the Talk (WTT), and the Vancouver Aquarium. These organizations were chosen because of their focus in environmental education, their connection to teachers in BC, and their interest in the research project. Table 1 presents these organizations, the modes of distribution, the number of contacts, and the number of responses.

Table 1. Online Survey Distribution

Organization	Mode of distribution	Number of contacts	Completed responses	Incomplete responses	Total
EEPSA	•LISTSERV	363	39	13	52
Sierra Club	•Distribution List	482	11	1	12
CBEEN	•Member Database, •Newsletter •Website	235	6	9	15
Wild BC	•Wild BC Facilitator Database	55	8	4	12
WTT	•Website •LISTSERV	916	1	1	2
Vancouver Aquarium	•eNewsletter	1800	22	2	24
Other	•Email	21	15	4	19

Participants. To identify BC teachers who could provide the best information related to the research questions, the researcher used purposeful or non-random sampling (Creswell & Plano Clark, 2011; McMillan & Schumacher, 2006). The focus on formal classroom teachers enabled a better understanding on how they incorporate EE within the context of the formal education system, which may be applied to a wider teaching audience in similar contexts. There was a total of 102 completed survey responses. Half of BC school districts were represented with almost an equal number of responses from elementary and secondary teachers. The ratio of female to male respondents was 2:1. Table 2 provides a general description of the respondents.

Table 2. *Environmental Education Survey Respondents*

Female	69%
Male	31%
Percentage of those between 30-39 years of age	37%
Average Years of Classroom Teaching Experience for K-7 Teachers	16.21 (SD=10.39)
Average Years of Classroom Teaching Experience for 8-12 Teachers	8.28 (SD=7.98)
Elementary Teachers	56%
Secondary Teachers	44%
Graduate Degree Holders	45%
Percentage of BC School Districts Represented	50%
Average Number of Students in Elementary School (i.e., School Size)	319
Average Number of Students in Secondary School (i.e., School Size)	938

Data Analysis. The survey results produced both quantitative and qualitative data. To begin analysis, the researcher grouped all qualitative data from the open-ended questions into categories and assigned codes (McMillan & Schumacher, 2006). All data were then analyzed using descriptive statistics (i.e., frequencies and percentages) for each of the responses (Trochim, 2006).

The researcher used inferential statistics to find out if there were relationships among certain parametric data (i.e., data with a normal distribution) (Trochim, 2006). These data were analyzed using analysis of variance (ANOVA) (McMillan & Schumacher, 2006; Trochim, 2006). This type of analysis tests for significant differences between the means to show if there are differences between groups (McMillan & Schumacher, 2006; Trochim, 2006).

Collecting data by interviews.

The interview questions followed the guidelines of grounded theory method and consisted of two open-ended questions and six prompts (Charmaz, 2006; Morton, 2009). To improve validity and reliability of the interview, an individual with a background in grounded theory analysis reviewed the draft version, and another individual from the EE field pilot-tested it.

The interviews began by following up with the participants' survey responses, as a way to begin with something familiar to put them at ease (Charmaz, 2006; Dilley, 2000; McMillan & Schumacher, 2006) and to allow them to expand on topics they considered important (Leech, 2002). Then, participants were asked:

"Tell me how you incorporate environmental education into your practice" (Cirkony, 2012, p. 43), with prompts to assist with facilitation (Charmaz 2006; Morton, 2009).

Following the guidelines of grounded theory method, the question was framed in a way that focused on process, and worded in an open-ended manner to allow respondents enough flexibility to freely describe their experiences while allowing the opportunity to explore emergent ideas (Charmaz, 2006).

Prior to the actual telephone interview, each of the interview participants received the central research question. From February 22, 2012 to May 7, 2012, the researcher conducted 12 interviews that lasted approximately 30 minutes each. All interviews took place over the phone, were recorded, and transcribed. After the initial transcription, the research compared it with original recording and sent the revised transcription to the participant to check the accuracy of the document, thus improving the validity of their responses (Creswell & Plano Clark, 2011).

Participants. Survey respondents indicated their interest in participating in a follow-up interview.

Based on the survey results, there were significant differences in some of the responses between new (i.e., 5 or less years) and experienced (i.e., 10 or more years) teachers, as well as elementary (i.e., K-7) and secondary (i.e., 8-12) teachers, thus potential participants were organized into four categories or *cases*. Using a quota system, the researcher selected 12 elementary and secondary teachers from a diversity of BC school districts, following the same 2:1 ratio of females to males found in the survey responses to maintain consistency (Creswell & Plano Clark, 2011; McMillan & Schumacher, 2006). Table 3 provides a description of the interview participants.

Table 3. Interview Participants by Case

Case	School District	School Type	Status
New Teachers (0-5 years)	Greater Victoria Delta Richmond	Public Independent (Non-denominational) Independent (Catholic)	Teacher on Call Current Current
Experienced Teachers (>10 years)	Greater Victoria Cariboo-Chilcotin Surrey	Public Public Public	Current Retired Current
Elementary Teachers	Richmond Coast Mountains Surrey	Public Public Public	Current Current Current
Secondary Teachers	Saanich Greater Victoria Rocky Mountain	Public Public (French Immersion) Public	Current Current Maternity Leave

Data Analysis. After each interview, the researcher transcribed the data and identified major themes by creating codes from phrases and sentences and compared them with new codes (Charmaz, 2006). This approach was repeated for each of the 12 interviews where some of the same codes were used, and additional codes were created to describe new themes. The process of coding and constant comparison was repeated until no new codes or categories emerged (Charmaz,

2006; Morton, 2009). After all the interviews were coded, the researcher reviewed all the transcriptions once more to ensure consistency in how the codes were applied to the data and to further refine the codes. The coding software, ATLAS.ti, generated a *codebook*, which organized the data by tags, codes, and incidents (i.e., data used to support the codes) (Strauss & Corbin, 1998). By reviewing the codebook and comparing the tags and codes with the research questions, the researcher identified *core codes* based on the number of respondents who contributed to it, and the number of incidents in the data. For example, the *having social responsibility* code had 28 incidents from all 12 respondents, indicating it was a core code. The core codes were organized into larger categories, and arranged graphically to determine possible patterns and relationships. Through this process, the research discovered strong patterns and relationships emerging from how participants defined EE, how they incorporated EE, and the supports and challenges they described.

RESULTS AND CONCLUSIONS

The following summary of the overall research findings will provide a broader context to how this group of teachers understood and implemented EE, including their perspective on the ELE resources. The teachers who participated in this research study were already implementing EE into their teaching practice. They shared their insights into how they were doing it, how their teacher-identity informed their practices, supports and challenges they encountered, and how they used the ELE resources.

Teachers thought EE should be integrated into all subject areas, confidently incorporated it into their practices in many elementary and secondary school subjects, and believed it should include an outdoor component. Teachers communicated a strongly articulated understanding of EE that connected how, why, and where they practiced EE. Broadly speaking, the used infusion, integration, and interdisciplinary approaches. They relied primarily on infusion, where EE is incorporated into the regular curriculum (e.g., during an organic chemistry unit, learning about the environment effects of plastics); and integration, where learning outcomes are organized around EE themes and courses (e.g., developing an *Environment & Sustainability Course*) (Beane, 1995; Jacobs, 1989; Lane, 2006). Only one secondary teacher described an interdisciplinary program where a theme or topic related to one or more disciplines (e.g., Social Studies 11 and Sustainability 11). Secondary teachers also had an additional opportunity to integrate EE as stand-alone courses (i.e., Board Authority Authorized [BAA] and Independent Directed Studies [IDS]).

Although many of EE practices described took place inside the classroom and within the school grounds, teachers unanimously identified the *outdoor* experience as an integral component of EE. They described the importance of connecting students to their local environment, nurturing an ethic of responsibilty and awareness of place, creating meaningful learning experiences for them, and providing an opportunity for students to enjoy the beauty of being in nature. Teachers included the outdoor component within their definition in EE and were able to accommodate these experiences for the students, despite the perceived barriers expressed in getting out of the classroom: a testament to how much they valued the importance of children being outside.

Teacher identity and engagement

Teachers rationale, philosophy, and specific pedagogical practices were strongly interconnected. Their rationale included an ecological worldview, which emphasized connections to the environment, a sense of social responsibility, and a deep concern for the future of their students. Teachers' rationale informed their philosophy which included making meaningful connections to the curriculum, instilling a sense of responsibility in their students, and using student-centered approaches. They incorporated a number of pedagogical practices, including issue-based discussions, hands-on activities, and action-based projects.

Supports and challenges

Teachers indicated the most effective supports that helped them incorporate EE included: having access to resources and professional development, having a good background knowledge in EE, collaborating with other teachers, and having support from EE-related organizations.

Secondary teachers relied on BAA and IDS courses to create environmental learning experiences for their students. BAA courses are developed by teachers and approved by their districts. IDS courses are projects led by students and facilitated by a teacher. Both are for-credit electives that supported teachers in their practice.

Resources extended beyond published documents, into places and green spaces, as well as non-profit organizations. Teachers identified local green spaces as places to take their students for walks, hands-on activities, and/or field trips. They also cited places such as universities, hospitals, and local farms as resources to support learning such as special programming, work placements, and volunteer activities. In addition, most participants accessed non-profit organizations for personnel, programs, and print-related resources.

In fact, non-profit organizations played a significant role in assisting teachers in incorporating EE into their practice. Sixty-five percent of survey respondents identified EE organizations as helpful, have attended their workshops, and/or hold a membership with those requiring them. Similarly, interview participants also cited how non-profit organizations provided programs, workshops, and resources, and named 16 local, regional, provincial, and national organizations, with local and regional ones being most common.

Teachers also described a variety of challenges in EE implementation. Fifty-six percent of survey respondents felt constrained by the timetable, and 49% identified lack time for course planning or preparation. These experiences were also reflected by the interviewees: timetable constraints to accommodate EE-related courses or field studies; additional time needed to collaborate and plan for integrated or interdisciplinary learning.

Learning outcomes in the curriculum was referenced in both sets of results. Sixty-two percent of survey respondents felt there were not enough environmental- and sustainability-related outcomes. There was a statistically significant difference between elementary and secondary teachers where 8-12 teachers felt they had enough. Interview participants voiced similar concerns, noting that there was not enough PLOs, many of the PLOs were not conducive to integration, that the PLOs focused too much on memorization and not enough on *bigger picture* thinking, and EE was not considered core curriculum.

In addition, 54% percent of survey respondents described a limited ability to get out of the classroom. Interview participants alluded to the overwhelming amount of the paperwork required to leave the school ground, the cost of transportation,

and the lack to time to leave the classroom due to the curriculum load. They also found provincial examinations (e.g., Foundation Skills Assessment, Social Studies 11) challenging in that much of the course focused around exam preparation.

Awareness and use of the ELE resources

Most of the questions pertaining to the ELE were embedded in the survey, allowing for more quantitative reporting. The interviews offered additional insight into how the resources were used by teachers. The ELE was one of many resources used by both survey respondents and interview participants. Sixty-four percent of the survey respondents were aware of the ELE resources and 54% of these teachers use them, whereas only 50% of the interview participants were aware and only one actively used them, with three others planning to use it now that they are aware of it.

Through a close-ended checklist type survey question, the 54% of survey respondents who use the ELE reported using it to design lesson plans (58%), apply interdisciplinary approaches (58%), and justify EE in their practice (55%). Similar results were found through an open-ended survey question, where respondents reported using the ELE to understand theory (36%), learn how to integrate EE (24%), justify their teaching approach (20%), and for professional development purposes (20%). These proportions were reflected in the interviews: Four participants used the ELE to design their lesson plans, and three used it to justify EE in their practice.

A secondary science teacher from Greater Victoria School District who used the ELE to design her lesson plans, explained:

> It helped me create my curriculum. It helped me make sure I had aspects of all those components with the modules I created. To make sure that it would be well-rounded, I wanted that course to be a survey course. I wanted to cover all aspects so it was a jumping-off point for students.

Three teachers referred to the resource to justify their integrated teaching approach, action-based projects, or field trips. A middle school teacher from Greater Victoria School District described how he used the document to justify his practice:

> I don't really refer to it. But I looked at it and said, "It's all good stuff." This is what I do for the most part. I don't think there is anything I disagree with that's in there, so it's a good document to reinforce what I do and it will be there if anyone asked why I integrate environmental education into French Language Arts or anything like that. I can use the document to back it up. It helps justify it.

Half of the interview participants were aware of the ELE resources but did not use them. Three participants found the ELE 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.

One elementary teacher found it didn't help her with the practical aspects of teaching: "I don't find it gives me what I'm going to teach or how I should do it." Another expressed similar sentiments in that it wasn't something that would help her "do, teach, and evaluate…It just means that it's not in a format that you can translate easily into the classroom."

Of the four components of the ELE resource, survey respondents indicated the Interdisciplinary Guide as most helpful to their teaching practice (74%), followed by the Curriculum Maps (58%), the workshops (26%), and the videos (24%).

Overwhelmingly, survey respondents discovered the ELE through professional associations that require memberships (57%), as well as other EE-related organizations (32%). In addition, 34% found these resources through professional development activities and 34% through university courses. Interview participants who were aware of the ELE, found them through similar venues: online, through professional development workshops, and from colleagues. For general EE resources, respondents found them primarily through EE-related organizations (70%), online (61%), through colleagues (44%), and professional development workshops (42%).

Recommendations and Discussion

The BC K-12 teachers involved in this research self-identified as environmental educators and were already implementing EE. Their innovative and engaging practices enabled them to teach a non-core interdisciplinary subject in our current education system. Whether they used the ELE resources or not, their practice offers valuable insight to those who are designing resources and professional development for environmental learning:

1. Design resources to include infusion, integrated, and interdisciplinary approaches for elementary and secondary classrooms, in all subject areas. Learning contexts should include both indoor and outdoor settings.

It is helpful if the resources, whether print or video, distinguish among infusion, integration, and interdisciplinary design and include examples of each in both elementary and secondary classroom, from across all subject areas. These examples can build from curricula, include related learning activities (e.g., recycling programs, walk to school campaigns, school garden management), and give specific advice on implementation.

In addition, some of the secondary teachers relied on BAA and IDS courses to create environmental learning experiences for their students. Resource developers may consider developing content and approaches to environmental learning that could be delivered through these for-credit elective courses.

Because teachers strongly connected the outdoors with environmental learning, it is useful that the resources connect curricula to outdoor learning experiences. The literature strongly supports students' interaction with the outdoors, outlining a number of benefits ranging from improved learning and engagment to development of students' health and well-being (Liebermann & Hoody, 1998, 2000; Louv, 2005; Palmer, 1999; Smith, 2002; Sobel, 2004). However, the outdoor learning environment is not a universal experience for students, including those in BC (Caner, 2009; Puk & Behm, 2003; Puk & Makin, 2006), and districts and schools have not made this practice more accessible to teachers. Resource developers may connect learning curricula with activities that take place outside the classrom, and include strategies and examples of how to minimize bureaucracy and costs.

2. Orient online and face-to-face professional development toward infusion, integration, and interdisciplinary approaches, in both indoor and outdoor settings. Professional development should also address the formation of teacher identity, how teacher rationale and philosophy influence practice,

demonstrate engaging teaching and learning models, and support of EE-practitioner communities.

Similar to resource development, professional development should also explain and showcase each of the three broad approaches to EE (i.e., infusion, integration, interdisciplinary). Teachers need to learn how to map current curriculum with each of these approaches in order to create units, courses, and programs that are meaningful in their own contexts, both indoors and outdoors.

Professional development should also explore teachers' understanding of EE and how it informs their philosophy and identity. The group of environmental educators in this study had a comprehensive understanding of EE: as a body of knowledge, a way of teaching (i.e., pedagogy), a reason for teaching (i.e., rationale), and taking place in outdoor settings. Their understanding of EE is reflective of Stapp's (1969) seminal definition, as well as the summative definition proposed by Lucas (1972) where EE is *about* the environment, *for* the environment, and *in* the environment (Stapp, 1969; Lucas 1972). Discussion and development of teachers' understanding of EE is the first step of building their teacher-identity, which was a powerful indicator of teachers' practices.

Hart's (2003) study of teachers in Canada, Australia, and UK demonstrated the relationship between their identity and practice. He found that their "deeply embedded beliefs and values" (p. 157) influenced their practices to make meaningful and relevant connections with the curriculum, use student-centered approaches, and prepare students to become responsible citizens. Similar to the BC teachers, they expressed these practices through hands-on learning, environmental action-based projects, and nurturing appreciation of the outdoors. "Changes in practice occurs only when teachers become conscious of the personal practice theories implicit in their practice and are able to reflect critically about them. These are the constructs, beliefs, and principles that guide teachers' practical work" (Hart, 2003, p. 196). Regardless of a jurisdiction, district or school mandate or policy, Hart concluded EE occurs in schools as a result of the "personal commitment of teachers who turn their personal theories into practical professional actions in the classrooms, schools, and communities" (p. xiii). The strength of teachers' purpose seemed to encourage their engagement and transcend the barriers they identified in the current education system, despite EE not being a core subject.

Finally, teachers also identified shared philosophy and collaboration with colleagues as important professional support. These EE champions provided support to their colleagues in their schools and districts. Resources and professional development may consider including strategies to support colleague-led learning communities.

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.

Community organizations, places, and activities played a strong role in supporting teachers' practices and distributing professional development resources. A resource connecting teachers with local, regional, national, and international resources would improve awareness and assist with EE implementation.

Teachers' engagement with EE-related organizations emphasized the critical role these organizations have in supporting EE in BC. In addition to the above recommendations, these organizations may want to consider designing resources specifically for infusion, integrated, and interdisciplinary approaches, along with providing professional development to support these practices. Organizations may also consider designing and expanding programs to provide outdoor learning experiences that connect students to their own community.

4. Participate in provincial, national, and international education transformation activities.

Education jurisdictions across the world are re-visioning their approach education in the 21st century. Practitioners of environmental learning 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. Showcasing their practices, especially through online formats and professional development workshops, may inspire more teachers to create similar learning environments. The next iteration of the ELE resources can build on feedback contained in this article and continue to support other teachers in re-visioning their own practices.

REFERENCES

Beane, J.A. (1995). Curriculum integration and the disciplines of knowledge. *The Phi Delta Kappan*, *76*(8), 616-622.

British Columbia Ministry of Education. (1989). *Statement of education policy order (mandate for the school system*) (School Act, section 169 (3)). Retrieved from http://www.bced.gov.bc.ca/legislation/schoollaw/d/oic_1280-89.pdf

British Columbia Ministry of Education. (1995). *Environmental concepts in the classroom*. Retrieved from http://www.pdf-searcher.com/BC-Min-of-Education---Environmental-Concepts-in-the-Classroom.html

British Columbia Ministry of Education. (2007). *Environmental learning and experience: an interdisciplinary guide for teachers*. Retrieved from http://www.bced.gov.bc.ca/environment_ed/environ_learning_exper.pdf

British Columbia Ministry of Environment. (2012). *Carbon Neutral BC*. Retrieved from http://www.livesmartbc.ca/government/carbon_neutral/index.html

British Columbia Round Table on the Environment and the Economy. (March 1993). *Towards sustainability: Learning for change*. Victoria, Canada: Round Table.

British Columbia Teacher's Federation. (1971). *Report of Meeting Task Force on Environmental Education.* Report prepared by the Division of Professional Development. Vancouver: BCTF.

British Columbia Teacher's Federation. (1972). *Environmental education…why?* Report prepared by the Division of Professional Development. Vancouver, BC: BCTF.

British Columbia Teacher's Federation. (1991). *Environmental education in British Columbia.* Report prepared by the Environmental Educators Provincial Specialist Association. Vancouver, BC: BCTF.

Caner, C. (2009). *A review of outdoor learning in British Columbia's public schools.* (Masters thesis). Retrieved from ProQuest Dissertations and Theses database. (UMI No. 880574949)

Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. Thousand Oaks, CA: Sage Publications.

Cirkony, C. (2013). *Environmental learning in British Columbia: A grounded theory exploration of teachers' practices.* (Masters thesis). Retrieved from ProQuest Dissertations and Theses. (UMI No. MR 84944)
Council of Ministers of Education Canada. (1999). *Educating for Sustainability: The Status of Sustainable Development Education in Canada*. Retrieved from http://www.cmec.ca/Publications/Lists/Publications/Attachments/9/environment.en.pdf
Courtenay-Hall, P., & Lott, S. (1999). Issues of inclusion in developing environmental education policy: Reflections on B.C. experiences. *Canadian Journal of Environmental Education*, *4*, 83-103.
Creswell, J.W. (2007). *Qualitative inquiry and research design. Choosing among five approaches.* (2nd ed.). Thousand Oaks, CA: Sage Publications.
Creswell, J., & Plano Clark, V. (2011). *Designing and conducting mixed methods research*. Los Angeles, CA: Sage Publications.
Dilley, P. (2000). Conducting successful interviews: Tips for intrepid research. *Theory into Practice, 39*(3), 131-137.
Dillman, D. (2000). *Mail and internet surveys.* New York, NY: John Wiley & Sons, Inc.
Glaser, B. & Strauss, A. (2008). *The discovery of grounded theory: Strategies for qualitative research*. London: Aldine Transaction.
Hammond, W.F. (1998). *The earth as a problem: A curriculum inquiry into the nature of environmental education* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses database. (UMI No. 0-612-37710-5)
Hart, P. (2003). *Teachers' thinking in environmental education: Consciousness and responsibility*. New York, NY: Peter Lang.
Jacobs, H. H. (1989). The growing need for interdisciplinary curriculum content. In H.H. Jacobs (Ed.), *Interdisciplinary curriculum design and implementation* (p. 1-11), Alexandria, VA: Association for the Supervision of Curriculum and Development.
Jarnet, A. (1998). The future of environmental education in Canada. *Canadian Journal of Environmental Education, 3*(1), 213-215.
Lane. J.F. (2006). *Environmental education implementation in Wisconsin: Conceptualization and practices* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses database. (UMI No. 3234831)
Liebermann, G., & Hoody, L. (1998). *Closing the Achievement Gap*. State Education and Environment Roundtable. Poway, CA: Science Wizards.
Liebermann, G.A., Hoody, L.L., & Liebermann, G.M. (2000). California student assessment project – The effects of environment-based education on student achievement. Retrieved from http://www.seer.org/pages/csap.pdf
Louv, R. (2005). *Last child in the woods: Saving our children from nature-deficit disorder*. Chapel Hill, NC: Algonquin Books of Chapel Hill.
Lucas, A. M. (1972). *Environment and environmental education: Conceptual issues and curriculum implications.* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (UMI No. 302644414)
Mason, J. (2006). Mixing methods in a qualitatively driven way. *Qualitative Research, 6*(9), 9-25.
McMillan, J., & Schumacher, S. (2006). *Research in Education*. Boston, MA: Pearson Education.
Morton, G. (2009). *How British Columbia school district superintendents manage data*. (Doctoral dissertation). Retrieved from: http://ir.lib.sfu.ca/handle/1892/11150
Onwuegbuzie, A. J., Johnson, R. B., & Collins, K. M. (2009). Call for mixed analysis: A philosophical framework for combining qualitative and quantitative approaches. *International Journal of Multiple Research Approaches, 3*(2), 114-139. doi: 10.5172/mra.3.2.114
Palmer, J. A. (1998). *Environmental education in the 21st century: Theory, practice, progress and promise.* New York, NY: Routledge Falmer.
Palmer, J. A. (1999). Research matters: A call for the application of empirical evidence to the task of improving the quality and impact of environmental education. *Cambridge Journal of Education, 29*(3), 379-395. doi: 10.1080/0305764990290308
Puk, T., & Behm, D. (2003). The diluted curriculum: The role of government in developing ecological literacy as the first imperative in Ontario secondary schools. *Canadian Journal of Environmental Education, 8*(1), 217-232.
Puk, T., & Makin, D. (2006). Ecological consciousness in Ontario elementary schools: The truant curriculum and the consequences. *Applied Environmental Education & Communication, 5*(4), 269-276. doi: 10.1080/15330150601088968
Scheuren, F. (n.d.). *What is a survey?* Retrieved from: http://www.whatisasurvey.info/
Smith, G. A. (2002). Place-based education: Learning to be where we are. *The Phi Delta Kappan, 83*(8), 584-594.
Sobel, D. (2004). Place-based education: Connecting classrooms & communities. Great Barrington, MA: The Orion Society.
Stapp, W.B. (1969). The concept of environmental education. In H. Hungerford, W. Bluhm, T. Volk, J. Ramsey, (Eds.). *Essential readings in environmental education.* (pp. 33-36). Champaign, IL: Stipes Publishing LLC.
Strauss, A., & Corbin, J. (1998). *Basics of qualitative research*. Thousand Oaks, CA: Sage Publications.

Tashakkori, A. & Teddlie, C. (2003). Major Issues and Controversies in the Use of Mixed Methods in the Social and Behavioral Sciences. In A. Tashakkori & C. Teddlie (Eds.). *Handbook of mixed methods in social and behavioral research* (pp. 3-50). Thousand Oaks, CA: Sage Publications.

Trochim, W. (2006). *Research Methods Knowledge Base*. Retrieved from: http://www.socialresearchmethods.net/kb/stat_t.php

United Nations Educational, Scientific and Cultural Organization. (1978). *Intergovernmental Conference on Environmental Education Tbilisi Final Report*. Retrieved from http://www.gdrc.org/uem/ee/EE-Tbilisi_1977.pdf

United Nations Educational, Scientific and Cultural Organization. (1992). *Agenda 21*. Retrieved from http://www.un.org/esa/dsd/agenda21/

United Nations World Commission on Environment and Development. (2006). *Education for sustainable development*. Retrieved from http://www.unesco.org/bpi/pdf/memobpi39_sustainabledvpt_en.pdf

World Commission on Environment and Development. (1987). *Our Common Future.* New York, NY: Oxford University Press.

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

APPENDIX A: SURVEY RESPONSES

Questions	Count	% Responses
1. Please indicate gender.		
Female	90	69%
Male	40	31%
2. Please indicate age range.		
Under 30	19	15%
30-39	48	37%
40-49	19	15%
50-59	27	21%
60 and over	17	13%

3. Indicate how you feel about each of the following statements:

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Don't Know	Total
Environmental education should be addressed in school.	108 (92%)	7 (6%)	1 (1%)	0 (0%)	1 (1%)	0 (0%)	117
Environmental education should be taught as a stand-alone subject.	21 (18%)	21 (18%)	29 (25%)	32 (28%)	12 (10%)	1 (1%)	116
Environmental education should be integrated in all subjects.	71 (61%)	34 (29%)	6 (5%)	2 (2%)	3 (3%)	0 (0%)	116
In BC, there are enough learning outcomes in the K-12 curriculum about the environment and sustainab	5 (4%)	16 (14%)	16 (14%)	56 (48%)	16 (14%)	8 (7%)	117
I have enough resources to teach environmental education in my classroom.	8 (7%)	40 (34%)	23 (20%)	29 (25%)	10 (9%)	6 (5%)	116
I receive enough professional development to integrate environmental education into my daily lessons.	12 (10%)	23 (20%)	20 (17%)	39 (34%)	16 (14%)	6 (5%)	116
I receive enough support from my school administrator(s).	12 (10%)	36 (31%)	27 (23%)	22 (19%)	6 (5%)	12 (10%)	115
In my school, teachers collaborate and share best practices.	13 (11%)	47 (41%)	18 (16%)	21 (18%)	4 (3%)	13 (11%)	116
In my school, teachers participate in decisions involving administrative policies and procedures.	7 (6%)	33 (28%)	24 (21%)	28 (24%)	8 (7%)	16 (14%)	116
I feel confident about integrating environmental education in my lesson plans.	54 (47%)	40 (34%)	10 (9%)	5 (4%)	2 (2%)	5 (4%)	116
It's important my students have outdoor educational experiences.	95 (82%)	15 (13%)	1 (1%)	2 (2%)	1 (1%)	2 (2%)	116

Questions	Count	% Responses
4. Before doing this survey, were you aware of the 'Environmental Learning and Experience' guide and/or resources?		
Yes	74	64%
No	41	36%
5. How did you find out about the ELE? Check all that apply.		
BC Ministry of Education	19	25%
Colleague	16	22%
Online	14	18%
Environmental Education related organizations (e.g. Sierra Club BC, Wild BC, etc.)	24	32%
Professional Associations requiring membership (e.g. EEPSA, EECOM, CBEEN, etc.)	42	57%
Professional development workshop/seminar/conference	25	34%
School or district administrator	3	4%
School's Green Team	1	1%
University course(s)	25	34%
Other, please specify:	6	8%
6. Do you use the ELE in your teaching practice?		
Yes	41	54%
No	35	46%
7. Describe how you use the ELE resources. Check all that apply.		
I use it to justify field trips	12	32%
I use it to justify environmental education in my practice	21	55%
I use it to design my lesson plans	22	58%
I use it to design more community-based action projects	14	37%
I use it to apply an interdisciplinary approach to my teaching practice	22	58%
I use it to identify resources for my classroom	7	18%
Other, please specify:	9	24%
8. Which part(s) of the ELE resource(s) are most helpful to your teaching practice? Check all that apply.		
The interdisciplinary guide	28	74%
The curriculum maps	22	58%
The videos	9	24%
The professional development workshop	10	26%
9. Explain how these resources are helpful to your teaching practice (or not).		
Help me to understand the theory of environmental learning	9	36%
Help me to understand how to integrate environmental education into different subjects	6	24%
Help to justify my teaching approach	5	20%
Use it for professional development (personal and/or with colleagues)	5	20%
10. Indicate where you find general environmental education resources (i.e. other than the ELE). Check all that apply.		
BC Ministry of Education	32	29%
Colleague	49	44%
District administrator	2	2%
In my school	24	22%
Online	68	61%
Environmental Education related organizations (e.g. Sierra Club BC, Wild BC, etc.)	78	70%
Professional Associations requiring memberships (e.g. CBEEN, EEPSA, EECOM, etc.)	44	40%
Professional development workshop(s)	47	42%
School's Green Team	11	10%
School administration	5	5%
University course(s)	40	36%
Other, please specify:	28	25%
11. Are you aware of your School District's Carbon Neutral Action Reports?		
Yes	36	33%
No	74	67%
12. Check all the practices that help you integrate environmental education into your teaching practice.		
Attending professional development workshops	86	79%
Collaborating with other teachers	83	76%
Collaborating with teacher leads/department heads	30	28%
Having access to resources	88	81%
Having a good background knowledge in environmental education	85	78%
Receiving support from school district	36	33%
Receiving support from school administration	52	48%
Receiving support from an environmental organization	71	65%
Receiving support from parents	52	48%
Using the ELE resources	24	22%
Other, please specify:	17	16%

Questions	Count	% Responses
13. Check all the barriers you face that hinder integration of environmental education into your teaching practice.		
Constrained by timetable	61	56%
Does not relate to curriculum I teach	15	14%
Difficult to assess	17	16%
Lack of time for course planning and/or preparation	57	53%
Lack of resources for lesson planning and activities	38	35%
Lack of background knowledge in environmental education	17	16%
Lack of pre-service training in environmental education	20	19%
Lack of in-service training in environmental education	26	24%
Lack of cooperation with other teachers	35	32%
Lack of support from school administrators	30	28%
Lack of support from professional or community organizations	8	7%
Lack of support from the Ministry of Education	23	21%
Limited ability to get out of the classroom	58	54%
Unsure how to integrate into the curriculum	7	6%
Other, please specify:	29	27%
Funding	8	7%
None	4	4%
14. Indicate any degree(s) or equivalent training.		
B. A.	37	35%
B. Ed.	63	59%
B. Human Kinetics	3	3%
B.Sc.	31	29%
B.Fine Arts	0	0%
P.D.P.	18	17%
Master's Degree	46	43%
Doctoral Degree	2	2%
Other, please specify:	28	26%
15. List any university course name and/or course description you took that relates to environmental education or sustainability.		
Programs	37	47%
Coursework	31	39%
Workshops	4	5%
Other	7	9%
16. Check your program of study during your teacher education program.		
Elementary Education	50	47%
Middle School Education	10	9%
Secondary Education	36	34%
Other, please specify:	10	9%
17. List any environmental education or sustainability-related professional development workshops and/or seminars you have participated in.		
Attending no workshops, seminars, conferences	6	7%
Attending 1 workshop, seminar, or series	16	20%
Attending 2-5 workshops, seminars, or series	15	19%
Attending 5-10 workshops, seminars, or series	14	17%
Attending >10 workshops, seminars, or series	18	22%
Attending 1 conference	9	11%
Attending 2-5 conferences	13	16%
Attending 5-10 conferences	1	1%
Attending >10 conferences	6	7%
Most frequenty listed conferences & workshops:		
EEPSA	20	25%
Wild BC	9	11%
EECOM	8	9%
Get Outdoors	5	6%
Project Wild	5	6%
Respondents who indicated they facilitated the workshop, seminar, series, or conference	9	11%
18. Check all current professional memberships.		
Canadian Network for Environmental Education and Communication (EECOM)	18	25%
Environmental Educators Provincial Specialists Association (EEPSA)	46	65%
Intermediate Teachers Provincial Specialists Association	4	6%
North American Association for Environmental Education (NAAEE)	9	13%
Primary Teachers Provincial Specialists Association	6	8%
Science Educators Provincial Specialists Association	8	11%
Social Studies Provincial Specialists Association	2	3%
Technology Educators Provincial Specialists Association	0	0%
The Columbia Basin Environmental Education Network (CBEEN)	12	17%
National Science Teachers Association	2	3%
Association of Experiential Education	3	4%
None	3	4%
Other, please specify:	10	14%
19. How many years have you been teaching or have you taught K-12?		
0-5 years	30	29%
6-10	23	22%
11-15	19	18%
16-20	11	11%
21-25	7	7%
26-30	5	5%
31-35	6	6%
36-40	3	3%
20. Indicate which grade(s) you usually teach? Check all that apply.		
K-7	60	57%
8-12	40	38%
Other	5	5%

Questions	Count	% Responses
21. Check the statement that best describes your current teaching situation.		
I am currently teaching	70	67%
I am not currently teaching	8	8%
I am a TOC	10	10%
Other, please specify:	17	16%
22. Which grade(s) are you currently teaching?		
K-7	47	49%
8-12	37	39%
Adult Education	1	1%
Instructor at University	4	4%
Teacher on Call	1	1%
None/Not Applicable	6	6%
23. Check all the subject areas that you are currently teaching.		
Arts Education (e.g., art, drama, music, etc.)	41	43%
Applied Skills (e.g., business education, home economics, technology education, etc.)	20	21%
English Language Arts (e.g., English, communications, writing, etc.)	44	46%
International Languages (e.g., French, Spanish, Japanese, etc.)	11	11%
French Immersion	14	15%
Math	43	45%
Physical Education	44	46%
Science	64	67%
Social Studies	52	54%
Other, please specify:	36	38%
Outdoor Education	8	8%
Environmental Education	7	7%
24. Select your current school district (or the one you spend most your time in).		
Abbotsford (SD34)	2	2%
Arrow Lakes (SD10)	1	1%
Boundary (SD51)	1	1%
Burnaby (SD41)	4	4%
Campbell River (SD72)	1	1%
Cariboo-Chilcotin (SD27)	1	1%
Central Coast (SD49)	1	1%
Central Okanagan (SD23)	2	2%
Chilliwack (SD33)	3	3%
Coast Mountains (SD82)	1	1%
Comox Valley (SD71)	1	1%
Coquitlam (SD43)	3	3%
Cowichan Valley (SD79)	1	1%
Delta (SD37)	1	1%
Greater Victoria (SD61)	9	9%
Haida Gwaii/Queen Charlotte (SD50)	1	1%
Kootenay Lake (SD08)	1	1%
Maple Ridge-Pitt Meadows (SD42)	1	1%
New Westminster (SD40)	1	1%
North Okanagan-Shuswap (SD83)	1	1%
North Vancouver (SD44)	5	5%
Powell River (SD47)	3	3%
Revelstoke (SD19)	1	1%
Richmond (SD38)	4	4%
Rocky Mountain (SD06)	3	3%
Saanich (SD63)	4	4%
Southeast Kootenay (SD05)	1	1%
Surrey (SD36)	8	8%
Vancouver (SD39)	19	20%
West Vancouver (SD45)	3	3%
Not applicable	8	8%
25. Describe your school setting. Check all that apply.		
Public school	73	76%
Independent school	11	11%
Online School	0	0%
Band School	0	0%
Other, please specify:	15	16%
26. Indicate the approximate number of students in your school.		
0-100	12	13%
101-200	12	13%
201-300	14	15%
301-400	12	13%
401-500	15	16%
501-800	10	11%
801-1100	5	5%
1101-1400	5	5%
1401-1700	3	3%
>1701	8	8%

END OF SURVEY.