

# **Sustainability Education as Teacher Education: A Mixed Methods Study of a Place-based Learning Environment**

by

**Carlos Gustavo Anthony Ormond**

M.Ed. (Science and Environmental Education), Simon Fraser University, 2007  
B.A. (Anthropology and Marine Biology), University of British Columbia, 2004

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# Approval

**Name:** Carlos Gustavo Anthony Ormond

**Degree:** Doctor of Philosophy

**Title of Thesis:** *Sustainability Education in Teacher Education:  
A Mixed Methods Study of a  
Place-based Learning Environment*

**Examining Committee:** **Chair:** Delores van der Wey  
Assistant Professor

**David Zandvliet**  
Senior Supervisor  
Associate Professor

---

**Milton McClaren**  
Supervisor  
Professor Emeritus

---

**Darrell Fisher**  
Supervisor  
Professor  
School Science and Mathematics,  
Curtin University

---

**Vicki Kelly**  
Internal Examiner  
Assistant Professor

---

**Bonnie Shapiro**  
External Examiner  
Professor  
Faculty of Education  
University of Calgary

---

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## Abstract

In January 2011 the Sustainability Education in an Environment of Diversity (SEEDs) module was implemented as a pilot in the Professional Development Program (PDP) of Simon Fraser University's Faculty of Education. A teacher education module focused on environmental education (EE), SEEDs was similar in general purpose and structure to the other modules in the PDP in that it was designed to educate students to meet the general requirements for teacher certification. What made the SEEDs module unique was that it provided a range of place-based and outdoor field experiences and required teacher candidates to register for a place-based EE field course in Haida Gwaii. The general goal of the module was to develop educators who displayed the motivation and capacity to become key change agents in transforming education and society to progress towards a more sustainable future. From the beginning of SEEDs in January 2011 I was involved in the program. My roles in the SEEDs module were those of researcher, facilitator and instructor. These roles gave me an opportunity to document the implementation of the SEEDs module both quantitatively (with use of the Place-based Learning and Constructivist Environmental Survey) and qualitatively (through coding of SEEDs module teacher candidate assignments and evaluations, in addition to participant observation). The student reflections and commentaries do not speak of the influence of specific courses or requirements so much as they refer to the overall quality of the SEEDs module experience and its positive learning environment. Mentioned repeatedly as a high point learning experience was the Haida Gwaii field school during the middle semester of the professional year (Education 404). With regards to EE implementation, in most cases the teacher candidates appeared to have adopted a view of EE in schools as being realistically implemented through an infusion approach within the on-going curriculum combined with a commitment to experiential and place-based approaches to learning. Lastly, their responses suggest the power of modeling in a learning environment or experience: students appreciate learning about concepts and ideas, but they deeply appreciate seeing those ideas and concepts applied to their own professional learning experiences.

**Keywords:** Environmental education; education for sustainable development; learning environment; teacher education; place-based education; experiential education

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## List of Acronyms

|        |  |
|--------|--|
| Term   | Definition goes here, see examples below                             |
| SFU    | Simon Fraser University  |
| FoE    | Faculty of Education   |
| SEEDs  | Sustainability Education for an Environment of Diversity             |
| EE     | Environmental Education  |
| ESD    | Education for Sustainable Development                                |
| DESD   | Decade of Education for Sustainable Development                      |
| UN     | United Nations   |
| PLACES | Place-based Learning and Constructivist Environment Survey           |
| LER    | Learning Environment Research  |
| TER    | Teacher Education Research   |
| EEPSEA | Environmental Educators' PSA of the BCTF                             |
| ELE    | BC Ministry of Education Environmental Learning and Experience guide |
| GC     | Global Communities   |
| PDP    | Professional Development Program                                     |
| FS     | Faculty Sponsor  |
| FA     | Faculty Associate  |
| SA     | School Associate   |
| EL     | Environmental Learning   |
| ExpE   | Experiential Education   |

## Foreword

In order to situate myself in this research it is important to discuss perspectives, biases and assumptions I may have of education, and particularly about teacher education. My roots in environmental education (EE) began with my early work in the field of marine conservation, which led me to teach a marine ecology field school in Panama. It was there that I met Jorge, an important character in my story.

On a rainy late morning in the town of Isla Colon in the province of Bocas del Toro, Panama, Jorge, an indigenous Ngöbe and I waited out a tropical rain shower. At the beginning, Jorge and I made small talk, chatting about the *beisbol* and *futbol* games we had played against one another in the community and the laughs we shared from the experience. We had gotten to know each other quite well over the years since 2001 when I started coming down to work at a field station in the community of Boca del Drago on the far side of the island. Boca del Drago was also Jorge's community, and his family were prominent members in *la comunidad*. Upon returning to the table with another cup of *Duran* coffee for us, Jorge, knowing that my work focused on marine issues, made a comment that would forever affect my life. "You tell us we can't eat the turtles, but you don't tell us why". He was speaking to me as being a representative of the 'Western' science community, which included not only the Institute with which I was involved, as well as other well known national and international science and conservation institutions located on the island. The sincerity of his tone and expression when making the comment provoked me to a deep critical reflection on what I was actually aiming and hoping to do in this community—in Jorge's community.

I had chosen to work in this part of the world because of my attraction to Latin American culture and the ocean. Having a Canadian father and an Argentine mother, I was raised in both the coastal city of Vancouver, British Columbia and under the bright lights of Buenos Aires, Argentina. It was only later in my early 20s that I began to recognize how unique my upbringing was and how privileged I was to have been raised as I had. Without really being aware of it I had spent the better part of my early years comparing and contrasting my North American life with my Latin American life. As I matured, this exposure to two vastly different cultures naturally impacted the way in which I viewed the world, particularly as I developed critical thinking skills. During the

first few years of my post-secondary education, these skills led me to discover and be more aware of social and environmental issues around me. By 2002, given my background in anthropology and marine ecology, and the pull toward my Latin American roots, I found myself involved with marine conservation issues in Latin America.

It was the part “...you don’t tell us why” in Jorge’s comment that struck a chord with me. While being appreciative that Jorge felt comfortable enough to discuss such a topic with me, being regarded as someone who would tell him not to eat the turtles without explaining why lead to feelings of shame and embarrassment. In the end I did offer Jorge an explanation for turtle conservation. But that moment, sitting with Jorge and discussing the turtles over a cup of coffee while we waited for a tropical rainstorm to pass, forever changed the way I thought about bringing about social and environmental change. His question led me to see change as never being driven from the top-down, but rather needing to be always impelled from the bottom-up. From that insight I also realized that I should reorient my focus toward conservation education in addition to conservation science.

That conversation with Jorge reordered my priorities and passions. In 2005 I registered in a Masters program in the Faculty of Education at Simon Fraser University with a supervisory committee that contained two highly experienced leaders in environmental education (EE). Under their mentorship, I became part of the EE community in British Columbia, which included such organizations as the Environmental Educator’s Professional Specialist Association of the British Columbia Teacher’s Federation (EEPSA). Working closely with this community during my Masters degree program convinced me of the urgent need for continued research in the field of ‘progressive education’, and led me to enrol in a PhD program in 2008.

Within the field of environmental education, teacher education was one of my early interests. My Masters degree research focused on the preferred versus perceived learning environments of pre-service teachers in two environmental education courses, and during my PhD program I began extensively researching environmental education programming in teacher education programs in Canada (Ormond & Zandvliet, 2009). I found that since the late 1970s there had been just a handful of research and publications devoted specifically to environmental education for teachers, and

specifically for pre-service teachers. I began working with my supervisor and an experienced EE teacher who was the current president of EEPsA, to develop one of the first environmental education pre-service teacher education programs in North America. In 2011 this dream was realized in the creation of the *Sustainability Education in an Environment of Diversity* (SEEDs) module which was a one year long cohort module in the Professional Development Program (PDP), the pre-service teacher education program of Simon Fraser University. This case study is the story of the development and implementation of the SEEDs program module.

# **Chapter 1.**

## **Introduction**

### **Purpose of the Study**

In January 2011 a teacher education module focused on environmental education (EE) was implemented as a pilot in the Professional Development Program (PDP) of Simon Fraser University's (SFU) Faculty of Education (FoE). A module is defined as a cohort of up to thirty-two students who remain together for one calendar year in the teacher education program. The module in question, which is the focus of this study, came to be named Sustainability Education in an Environment of Diversity (SEEDs). It was similar in general purpose and structure to the other modules in the PDP in that it was designed to educate students to meet the general requirements for certification by the BC Ministry of Education Teacher Regulation Branch, and in turn to qualify for employment as a K-12 teacher in the province. What made the SEEDs module unique was that it would provide a range of place-based and outdoor field experiences that allowed students the option of completing a Minor in Environmental Education, while complementing other pre-service teaching majors, such as Elementary or Secondary Science, Math, English and Social Studies, along with the BC Ministry of Education Teacher Regulation Branch certification. The philosophical and pedagogical foundations of the SEEDs module were adopted from an antecedent, a PDP module titled Global Communities (GC) that concluded in 2010. Seven related curriculum and pedagogical fields are identified as having had inclusion in the SEEDs module: Experiential Learning; Critical Pedagogy; Constructivism; Environmental Education; Education for Sustainable Development; Indigenous Education; and Place-based Education.

My roles in the SEEDs module were those of researcher, facilitator and instructor. From the beginning of SEEDs in January 2011 I was involved in the program. I got to know all the students personally, through informal conversations and also through formal interactions as their instructor, and through the research process. These roles gave me an opportunity to document the implementation of the SEEDs module and to describe the experiences of the students. This thesis is a case-study of the implementation of a unique teacher education module which attempted to translate curriculum theory into practice by applying approaches to teacher education that could prepare pre-service teachers to employ practices in their own work that would nurture environmental literacy in their students and assist in shifting towards a sustainable society.

## **Rationale for the SEEDs Module**

In the 1990s, the United Nations (UN) Educational, Scientific and Cultural Organization (UNESCO), identified teacher education programs and teacher educators as major players in the reorientation of education to address sustainability (UNESCO, 2005a). In 1998 the UN Commission on Sustainable Development (UN CSD) appealed to UNESCO “to develop guidelines for reorienting teacher training to address sustainability” (UNESCO, 2005a, p. 11). The reason for such an emphasis on teacher education programs, as understood by UNESCO (2005a) is that:

*Institutions of teacher education fulfill vital roles in the global education community; they have the potential to bring changes within educational systems that will shape the knowledge and skills of future generations. Often, education is described as the great hope for creating a more sustainable future; teacher-education institutions serve as key change agents in transforming education and society, so such a future is possible. Not only do teacher-education institutions educate new teachers, they update the knowledge and skills of in-service teachers, create teacher-education curriculum, provide professional development for practicing teachers, contribute to textbooks, consult with local schools, and often provide expert opinion to regional and national ministries of education. Institutions of teacher education also perform similar services for school principals who have significant impact on what occurs in schools. Because of this broad influence in curriculum design and implementation, as well as policy setting within educational institutions, faculty members of teacher-education institutions are perfectly poised to*

*promote education for sustainable development (ESD). By working with the administrations and faculties of teacher education institutions, governments can bring about systematic, economically effective change. For these reasons, nations should include teacher education institutions in their national sustainability plans. (p. 11).*

In 1999 with the support of the UN CSD, UNESCO went on to establish at York University the University Education Twinning and Networking Scheme (UNITWIN)/UNESCO Chair on Reorienting Teacher Education to Address Sustainability. The Chair is currently held by Professor Chuck Hopkins. The purpose of the Chair was to provide counsel to UNESCO and to teacher education institutions around the world. The development of the UNESCO Chair came to be one of the precursors for UNESCO to declare, at the 2002 World Summit on Sustainable Development, that 2005-2014 would be the UN Decade for Education for Sustainable Development (DESD) (2005b). The decision to establish the DESD was taken as a reaction to the lack of national-level actions to promote sustainable development even after the numerous UN conferences held during the 1990s, including the major 1992 Earth Summit.

The rationale of the DESD was to promote the idea that quality education is a prerequisite for education for sustainable development at all levels and in all modalities of education. The primary goals, as stated in the UN General Assembly resolution, are:

*(to encourage] Governments to consider the inclusion...of measures to implement the Decade in their respective education systems and strategies and, where appropriate, national development plans; and*

*[to invite] Governments to promote public awareness of and wider participation in the Decade, inter alia, through cooperation with and initiatives engaging civil society and other relevant stakeholders, especially at the beginning of the Decade. (UNESCO, 2005b, p. 6)*

Educators and researchers alike have argued that if K-12 schools hope to produce environmentally literate people, teachers must first have the ability to 'environmentalize' the curriculum (McClaren, 1989; Lin, 2002). If they do not receive this instruction at the pre-service or in-service teacher education level, where will this occur? Jickling (1997), in commenting on the relations between EE and teacher education, argued that, "...if we are to grasp the present opportunities to shape environmental education and its place in educational systems, we must change our approach; [this] will

involve...changes to teacher education” (p.100). Unfortunately research studies from around the world continue to inform us that EE and sustainability programming are encountering significant obstacles in being integrated into teacher education (see Beckford, 2008; Lin, 2002; Tilbury, 1992). Teacher education in Canada is a clear example, with research by Lin (2002) and Beckford (2008) painting a sad picture of the occurrence of EE as a significant component of teacher education programs. Their work suggests that not only are there just a few Canadian universities offering EE programming in teacher education, but that there has also been no dramatic increase in EE programming in teacher education in Canadian post-secondary institutions over the past thirty years.

Being aware of the situation regarding EE in teacher education in Canada, I worked with colleagues to implement an EE student module within the professional (pre-service) teacher education program of SFU’s Faculty of Education. Our larger, general objective was to develop pre-service teachers with the motivation and capacity to act as key change agents in transforming education and society to create a more sustainable future.

## **Foundation of the SEEDs Module**

The FoE of SFU has a long and rich history of field schools and EE. The Environmental Learning and Sustainability Academy - ELSA (previously known as the Summer Institute in Environmental Education) is now reaching its forty-third year of offering EE programming in teacher education at SFU. From its inception in 1971, ELSA faculty have worked closely with practicing in-service teachers, faculty from a range of disciplines within the university and the general community to offer an EE field school during the summer semesters at SFU. The first offering, and the site until 1998, was based at the McQueen Lake Environmental Education Centre in Kamloops, BC. In 1999, the field school was relocated to the city of Vancouver and the Metro Vancouver region, in addition to a second field course that took students to the Yukon and later to Haida Gwaii. The ELSA courses now have two offerings: EDUC 452 – Environmental Education (Metro Vancouver) and EDUC 452 – Environmental Education (Haida Gwaii) by SFU’s FoE. For clarity, EDUC 452 – Environmental Education (Metro Vancouver)

was based in the Metro Vancouver region, and EDUC 452 – Environmental Education (Haida Gwaii) was based in Haida Gwaii. The courses have always been offered as an elective course during the second semester/stage (Education 404) of the three-semester teacher education program and not as a required course of any particular module within PDP. The SEEDs module was the only PDP module specifically to require students to take EDUC 452 – Environmental Education (Haida Gwaii) as part of their teacher education experience.

The SEEDs module had its roots in a previously existing module of the PDP called Global Communities (GC). The GC module was established in 2004 by a Faculty member in the FoE with a background in field biology and science education. This Faculty member later initiated the development of SEEDs. As described by Alsop, Dippo and Zandvliet (2007), the Global Communities module, attempted to infuse the Faculty members' interest in ecological thinking into its programming.

*In Global Communities, pre-service teachers and their school-based mentors are encouraged to consider the broader context of the social and environmental community as the true role and purpose of teaching. In modeling this approach, module facilitators [i.e. FAs] ensure that members share significant place-based experiences as part of the instructional process and seminar experiences which in turn help set the tone for their work in the schools. (Alsop et al., 2007, p. 212).*

In the FoE at SFU core tenure track Faculty, such as the Faculty member associated with the GC and SEEDs modules, are given opportunities to act as Faculty Sponsors (FS) of special emphasis in teacher education student modules. An incentive for taking on this role is that they may extend their research interests through their work with a module. Faculty sponsors may involve themselves with module programming in a variety of ways, including working with module instructors, who are known as Faculty Associates (FAs). In the staffing structure of the PDP, a Faculty Associate (FA) is normally a practicing BC teacher who is recruited from the K-12 school system and appointed at SFU on secondment from their regular school district for a 1-2 year-term. Their major role is to work in the instruction and classroom supervision of pre-service student teachers (See Chapter 3 for a detailed description of program staffing)

The educational approach taken by the GC module was an ecological one for it

...

*...places emphasis on the inescapable embedded-ness of humans and their technologies in natural systems. Rather than seeing nature as other, [the] module nurtures the practice of viewing humans as part of the natural world and human societies and cultures as an outgrowth of interactions between our species and particular places. Such an approach, allows practitioners to consider multiple perspectives on an issue of problem (Alsop et al., 2007, p. 212).*

This education approach was inherited by the SEEDs module in 2011.

In 2009 the GC module welcomed a Faculty Associate with a background in EE both in the formal and informal sector. With both a FS and FA with solid foundations in EE, a proposal was made in early 2010 to the FoE's Undergraduate Programs Committee and Professional Programs Committee (UPC-PCC) to re-align the GC as an EE module. The main points of that proposal were as follows.

1. Change the name of the Global Communities Module to more explicitly reflect its environmental education focus.
2. Link/require students to enrol in EDUC 452 Environmental Education – D2 during second semester (Education 404) of PDP. [The required enrolment in EDUC 452 also provided students with the opportunity of completing a Minor in EE, since this course is also a required course for that Minor along with a number of lower cross-faculty division courses].
3. In the longer term, explore alternate configurations for one of the Faculty Associate positions to involve community partners in the informal education sector [i.e. the FA does not need to be a K-12 in-service teacher].

The idea here was to have a module that was explicit in its intent to allow for the opportunity to complete the requirements for a Minor in Environmental Education while completing an undergraduate degree and/or teaching certificate that was facilitated by educators from both the formal and informal sectors of education with ties to the local community.

By June 2010, the UPC-PPC accepted the terms of the proposal under the understanding that the format of SEEDs would be reviewed again next year before a

second offering of this program in 2012. The FS asked that the module continue temporarily to be called GC until a decision about the module name could be made with the first group of pre-service teachers who enrolled in the new module in January 2011.

In July 2010, individuals who had been accepted into SFU's PDP in the FoE were sent a promotional piece on the new environmental education module. While PDP applicants are able to select their preferences for which module they would like to be involved with in the PDP application form, these students are assigned into a module upon acceptance into PDP. Therefore receiving a notice from PDP inviting these pre-service teacher candidates to consider the opportunity to apply to be a part of this SEEDs module was out of the ordinary. While more will be discussed in Chapter 3, 50 people applied and 32 were selected to be a part of the SEEDs module. All 32 students were now required to enrol in EDUC 452 – Environmental Education (Haida Gwaii), which had not been the case with the GC module (Table 1). More will be discussed on Education 401/2, 404, and 405 in addition to EDUC 452 in Chapter 3.

**Table 1. Module Differences Between GC and SEEDs**

|                                    | <b>GC</b> | <b>SEEDs</b> |
|------------------------------------|-----------|--------------|
| <b>Students can apply with LOI</b> | No        | Yes          |
| <b>Education 401/2</b>             | Required  | Required     |
| <b>Education 404 - electives</b>   | Required  | Required     |
| <b>Education 404 – EDUC 452</b>    | Elective  | Required     |
| <b>Education 405</b>               | Required  | Required     |

## **Research Purpose and Associated Questions**

The purpose of this thesis was to describe the implementation of a 12-month EE module of a teacher education program in the Education faculty of a Canadian public university. In the process of describing the program I hope to address the following questions.

1. What type of learning environments do pre-service teachers who apply to an environmental education-themed module prefer?

2. How do students perceive the actual learning environment of the SEEDS module? What were the students' perceptions of the learning environment of the SEEDs module as they experienced it?
3. What are students' most memorable (i.e. transformational) experiences in the SEEDs module?
4. Do students' conceptions/ understandings of environmental education change from beginning to end of the SEEDs module?
5. What does practical inquiry tell us about the skills valued by pre-service teachers in an EE module?
6. What factors encourage/discourage engagement of pre-service teachers in EE during their practicum? What themes of environmental education can be described in the emerging practices of pre-service teachers participating in an EE module?

## **Chapter 2.**

### **Theoretical Framework**

The aim of this chapter is to introduce the reader to the concepts and curriculum theories that shaped the design and operation of the SEEDs module. This is not a complete discussion on the development or on the current status of EE theory and practice in EE, since that has been reviewed thoroughly by others (Palmer, 1998; Sauv e, 2005; Stevenson, Brody, Dillon & Wals, 2013). Also, the students in this SEEDs module were not placed specifically in ‘environmental’ schools or in specific school EE programs; nor were most of them supervised in practica by committed environmental educators as School Associates. The focus here is specifically on EE curriculum theory as it relates to teacher education and on the theories that were influential in shaping the SEEDS program. SEEDS did not attempt to implement instructionally the complete range of current EE and environmental thinking. SEEDs, after all, was a program oriented towards developing the ability of teacher candidates to successfully navigate the requirements of regular practice in the K-12 school system.

With that said, this chapter will introduce readers to an overview of Environmental Education (EE) in both its prescriptive and descriptive curriculum theory forms in addition to describing the intersection between EE, Teacher Education Research (TER) and Learning Environment Research (LER). The chapter closes with a review of a current EE framework in British Columbia, while also presenting the current level of EE integration in Canadian Faculties of Education.

### **Curriculum Theories of SEEDs**

Now while the SEEDs module is an environmental education themed module, its first priority is as a pre-service teacher education program with the explicit outcome of

qualifying the graduates to apply for teacher certification in the province of British Columbia. With that in mind, the SEEDs module had 10 goals:

- Develop a strong sense of community
- Accept the risks inherent in new learning
- Examine your beliefs about teaching and learning
- Assume responsibility for your professional development
- Become a caring and reflective teacher
- Develop informed beliefs and educational theory
- Learn to accommodate and celebrate students' differences
- Develop effective classroom practices that nurture children
- Practice ethical, collaborative relationships with colleagues that are characterized by open and authentic communication
- Bring ecological and cultural awareness to student teaching practice

To meet these goals, as well as those of PDP (which will be discussed in Chapter 3), the SEEDs module adopted an infused approach for environmental education (EE) as demonstrated by the Environmental Learning and Experience (ELE) guides published by the BC Ministry of the Environment (2007). The ELE guides provided a framework for EE which included prescriptive and descriptive curriculum theories to support and facilitate EE in BC K-12 classrooms. The SEEDs cohort was introduced to this document during the first week of their teacher education program as a model to follow during their teacher training. In addition to that, the SEEDs module was influenced by learning environment curriculum theory; specifically that which related environmental education (see Ormond & Zandvliet, 2009; Zandvliet, 2007; 2012). Environmental educators across the province of British Columbia identified eight scales, or education-related constructs, from previously established learning environment inventories that they argued were elements of a learning environment belonging to an environmental education program/course. This learning environment tool became known as the Place-based and Constructivist Environmental Survey (Zandvliet, 2012). The following sections will speak to the influence of the PLACES and the ELE guides on SEEDs' curriculum through a discussion on environmental education and learning environment curriculum theories.

## ***Prescriptive***

There are generally two broad types of curriculum theories, prescriptive and descriptive (Eisner, 1985). Prescriptive theory describes and/or proposes *what* should be taught, while descriptive theory addresses and describes and/or proposes *how* things should be or are taught. I begin here discussing the prescriptive theories that have influenced the curriculum of the SEEDs module: Environmental Education (EE) and Education for Sustainable Development (ESD).

## **Environmental Education**

Although “its roots may be found in many other places, times and cultures” (see Merchant, 2005), EE emerged on the international scene in the 1960s and 70s. The 1960s brought a renewed sense of awareness for the natural environment, and its connection to our own health. Rachel Carson’s *Silent Spring* (1962/2002) and *The Sense of Wonder* (1965/1998) also led this awakening. With its usage becoming more and more popular, there were a number of international meetings that attempted to provide a definition that would be accepted worldwide (refs). In 1970, the United Nations Educational, Scientific, Cultural Organization (UNESCO) and the International Union for the Conservation of Nature (IUCN) hosted an *International Working Meeting on Environmental Education*, where experts in the field, both government and non-government, came up with the classic and most widely accepted definition of environmental education.

*Environmental education is the process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the inter-relatedness among man [sic], his culture, and his biophysical surroundings. Environmental education also entails practice in decision-making and self-formulation of a code of behaviour about issues concerning environmental quality. (IUCN, 1970).*

Seven years later in 1977, UNESCO hosted the First Inter-governmental Conference in Environmental Education in Tbilisi, Georgia. This event brought 66 UNESCO government delegates along with NGOs to “[prepare] recommendations for the wider application of environmental education in formal and non-formal education”. The final report, later known as the *Tbilisi Declaration* stated that:

*Environmental education is a process aimed at developing a world population that is aware of and concerned about the total environment and its associated problems, and has the attitudes, motivations, knowledge, commitment and skills to work individually and collectively towards solutions of current problems and the prevention of new ones.*

*Awareness: to help individuals and social groups acquire an awareness of and sensitivity to the total environment and its allied problems;*

*Knowledge: to help individuals and social groups gain a variety of experiences with the total environment and to acquire a basic understanding of the environment, its associated problems and humanity's critical responsible presence and role in it;*

*Attitudes: to help individuals and social groups acquire social values, strong feelings of concern for the environment and the motivation for actively participating in its protection and improvement;*

*Skills: to help individuals and social groups acquire the skills for working toward the solution of environmental problems and to foster a dialogue between these groups; and,*

*Participation: to help individuals and social groups develop a sense of responsibility and urgency regarding environmental problems to ensure appropriate action to help solve these problems and avoid future problems. (Stapp, 1969/1997, p. 36).*

## **Education for Sustainable Development**

The concept of sustainable development emerged more than twenty years ago as an effort to find an alternative to economic growth that would lead to social and economic progress in a more environmentally conscious manner. The definition provided by the report of the 1987 UN World Commission on Environment and Development (WCED) (also referred to as the Brundtland Report), is one of the most accepted definitions of sustainable development.

*[Sustainable development] is development that meets the needs of the present without compromising the ability of future generations to meet their own needs (WCED, 1987, p. 37).*

In 1991 this definition was extended with the addition that goal of sustainable development is to:

*[improve] the quality of human life while living within the carrying capacity of supporting ecosystems (IUCN, UNEP & WWF. 1991).*

Sustainable development garnered widespread appeal in large part because the concept brought into “harmony two politically attractive but potentially conflicting notions” (Bonnett, 1999, p. 313): the idea of sustaining that which is valued, but which is currently endangered through depletion, pollution, and so forth; and, the idea of accommodating ongoing human aspirations to develop, i.e. in some sense to have more or better”. The shift from EE to *Education for Sustainable Development* (ESD) developed as an attempt to re-brand EE in order to make it more politically acceptable and to attract funding from patrons who were nervous of the social activism of EE in the 60s and 70s.

In 1992 the document Agenda 21, a UN agreement that resulted from the Earth Summit in Rio de Janeiro, Brazil outlined what governments around the world should be doing in the twenty-first century to achieve sustainable development; an important strategy in achieving this was through *Education for Sustainable Development* (Palmer, 1998). As currently defined by UNESCO (2013, para.1):

*Education for Sustainable Development allows every human being to acquire the knowledge, skills, attitudes and values necessary to shape a sustainable future.*

*Education for Sustainable Development means including key sustainable development issues into teaching and learning; for example, climate change, disaster risk reduction, biodiversity, poverty reduction, and sustainable consumption. It also requires participatory teaching and learning methods that motivate and empower learners to change their behaviour and take action for sustainable development. Education for Sustainable Development consequently promotes competencies like critical thinking, imagining future scenarios and making decisions in a collaborative way.*

*Education for Sustainable Development requires far-reaching changes in the way education is often practised today.*

With a sector of the EE community supporting the need to shift its focus to an education for sustainable development, at the *World Summit on Sustainable Development* (WWSD) the UN declared that 2005-2014 would be declared the *Decade of Education for Sustainable Development* (DESD) (see Kujiper, 2003). The DESD is

somewhat a combination of a number of prior UN summits, agreements and programs, such as *Agenda 21*, UN Millennium Goals (MDGs), WSSD, *Education for All* (EFA), and the *UN Literacy Decade* (UNLD). The purpose of the DESD is promoting the idea that quality education is a prerequisite for education for sustainable development at all levels and in all modalities of education (UNESCO, 2005b). The primary goals, as stated in the UN General Assembly resolution, are:

*[to encourage] Governments to consider the inclusion...of measures to implement the Decade in their respective education systems and strategies and, where appropriate, national development plans; and*

*[to invite] Governments to promote public awareness of and wider participation in the Decade, inter alia, through cooperation with and initiatives engaging civil society and other relevant stakeholders, especially at the beginning of the Decade* (UNESCO, 2005b, p. 6).

## **Environmental Learning in Canada**

While education in Canada is a provincial jurisdiction, the Canadian government in 2002 presented a national vision for environmental learning and sustainability in Canada. The use of the term environmental learning was purposeful as to avoid any conflict between the proponents of environmental education and education for sustainable development, in addition to being “inclusive and must offer an opportunity for all to discuss different approaches to promote lifelong learning with respect to the environment and sustainability” (Government of Canada, 2002, p. 1).

The proximity of the majority of the Canadian population to the USA has allowed for a constant exchange of people and culture in addition to culture sharing, and education is no different. The many fads and trends in education that emerged in the USA over the last century have had a direct impact on Canadian education. Progressivism (e.g. Dewey) in the 1920s and the emphasis on science education that emerged in response to the ‘Space Race’ of the 1960s are two excellent examples of this impact and the degree to which it can influence the Canadian education system (Hart, 1990; Simmons, 2005).

In Canada, environmental education has a history of being an individual endeavour (Hart, 1990). A number of these individuals were established professors at

universities across Canada who influenced environmental education being effectively positioned within government and school board policy and to some degree, implemented into the school system. Hart (1990) in his appraisal of environmental education in Canada claimed that it took an objectivist approach. For the most part, research and evaluation of environmental education had been conducted within the scientific/analytic paradigm. In an effort to gain credibility, environmental education in Canada and in many American States adopted research and development tools from science education. In doing so, Hart (1990) explains environmental education “was not meant to challenge existing institutional structures and practices” (p. 56). In addition, international developments have strongly influenced Canadian environmental education, as has the American hegemony:

*Thus, the Canadian environmental education movement, similar to Canadian society and education in general, espouses genuine global thinking at the level of rhetoric and American-like practice on the ground, in program delivery (Hart 1990 p. 57).*

For this reason, Hart (1990) points out the need for an environmental education that “becomes more consistent with environmental education rhetoric and which in turn will transform the rhetoric, which will transform the practice and so on... and so on... and so on...” (p. 63). In 1995, the province of British Columbia attempted to do that with the publication of *Environmental Concepts in the Classroom* (ECC) (British Columbia Ministry of Education, 1995), which led to a revised version in 2007 titled *Environmental Learning and Experience* (ELE) guides (British Columbia Ministry of Education, 2007). That same year a province wide learning environment inventory was developed by Zandvliet (2007; 2012) in partnership with British Columbia K-12 and community educators; the same group of educators who were involved with the development of the ELE. The ELE’s suggested framework, and PLACES became a foundation for the SEEDs module, both to the students themselves as teachers and to the module’s curriculum (more on that later in this Chapter).

### ***Learning Environments and Environmental Education***

The Place-based and Constructivist Environmental Survey (PLACES) was created through a merger of the most salient scales for environmental educators in

British Columbia (Canada) from previously established learning environment inventories. An effective learning environment is not easy to design, especially when having to decide what is taught, how it is taught and how learning is assessed. The task becomes even greater when taking into consideration the learning objectives for the subject and grade being taught, in addition to goals of the school. Much more is expected today than 100 years ago. Egan (1996) argues that there are inescapable contradictions in our expectations of schools in that we ask schools to both socialize and to educate.

*We see this conflict constantly between those who want our schools to ensure that students have particular skills and hold particular beliefs and live according to particular values and those who resist such shaping in the name of encouraging each student to explore and discover their individual talents, and form their own beliefs and values. Most people want both, in some degree and see no incompatibility in this. It is the failure to recognize the fundamental incompatibility, I am arguing, that leads most people to support an educational system dedicated to achieving the impossible (Egan, 1996, p. 23).*

According to Bransford, Brown and Cocking (2000) learning environments can be separated into four separate environment: learner centered; knowledge centered; assessment centered; and community centered (Bransford, Brown & Cocking, 2000).

*Learner centered environments: Includes teachers who are aware that learners construct their own meanings, beginning with the beliefs, understandings, and cultural practices they bring to the classroom, and attempt to help students make connections between their previous knowledge and their current academic tasks (p. 133).*

*Knowledge centered environments: Intersect with learner-centered environments when instruction begins with a concern for students' initial preconceptions about the subject matter...Without carefully considering the knowledge that students' bring to the learning situation, it is difficult to predict what they will understand about new information that is presented to them; [it] takes seriously the need to help students become knowledgeable by learning in ways that lead to understanding and subsequent transfer of that learning; it focuses on the kinds of information and activities that help students develop an integrated understanding of disciplines; includes an emphasis on sense-making – on helping students become metacognitive by expecting new information to make sense and asking for clarification when it doesn't; and lastly, it pays particular to attention to designs for curricula...to help students develop interconnected pathways within a discipline so that they "learn their way around in it" and not lose site of where they are (p. 136).*

*Assessment centered environments: Where continuous, but not intrusive, opportunities are provided for feedback and revision and that what is assessed must be congruent with one's learning goals. There is formative assessment, which involves the use of assessments (usually administered in the context of the classroom) as sources of feedback to improve teaching and learning; and summative assessment, which measures what students have learned at the end of some set of learning activities (p.140).*

*Community-centered environments: Refers to several aspects of community, including the classroom as a community, the school as a community, and the degree to which students, teachers, and administrators feel connected to the larger community of homes, businesses, states, the nation, and even the world (p. 144).*

Unless these four perspectives of learning environments are aligned, it is difficult to identify what is being learned. In order to design effective learning environments, a systems approach to coordinating classroom activities is required.

*Students may be learning valuable information, but one cannot tell unless there is alignment between what they are learning and the assessment of that learning. Similarly, students may be learning things that others don't value unless curricula and assessments are aligned with the broad learning goals of communities (Lehrer & Shumow in Bransford et al., 2000, p. 151).*

All four of these components of a learning environment have the potential to overlap, as well as mutually influence one another. The degree to which these perspectives align is a major factor in the acceleration of learning in and outside of schools. Unfortunately, research in learning does not provide a blueprint for designing effective learning environments, but it supports “the value of asking certain kinds of questions about the design of learning environments” (Bransford et al, 2000, p. 153). The field of learning environment research has done just that.

Learning environment studies acknowledge and account for both the physical and social realms where learning occurs (Temple, 2007). These socio-environmental and psychosocial conditions influence the process and experience of learning (Astin, 1993; Dorman, 2002; Dorman, Fisher & Waldrup, 2006; Fraser, 2012; Strange & Banning, 2001). Trends in learning environment research have indicated to us that a positive learning environment as perceived by the student is a predictor of greater

learning (Fraser, 2012). The development of learning environment research can be traced back to the work done by Kurt Lewin (1936), Henry Murray (1938), Herbert Walberg (w/ Anderson, 1968; Anderson & Walberg, 1974), and Rudolf Moos (1974). Lewin's (1936) field theory stipulated that human behaviour has two potent determinants: the environment and its interaction with an individual's characteristics.

Learning Environment Research (LER) has also provided compelling evidence to suggest that the classroom environment has a strong effect on student achievement (Fisher & Khine, 2006; Fraser, 2012; Goodlad, 1984; Wang, Haertel, & Walberg, 1993). To illustrate this Lewin (1936) created the formula  $B=f(P,E)$  which states that behaviour is a function of both the person and the environment. Murray (1938) worked alongside Lewin at Harvard, and shared similar ideas with him. Murray argued for a psychological model that regarded the person and the environment as analogous terms. This model was based on Murray's theory that the needs of a person are always under an environmental *press*, as he described it, which are external factors out of a person's control that either limit or enhance the achievement of their respective needs.

Several decades later, the work of such people as Walberg (Walberg & Anderson, 1968) and Moos (1974) adapted the work of Lewin (1936) and Murray (1938) to the classroom environment. Moos' (1974) development of social climate scales for human environments such as work, school and health care settings, and Walberg and Anderson's (1968) development of classroom environment assessments for the *Harvard Project Physics program* created the foundation for what is now a forty-year old tradition.

The use of questionnaires in LER established an economical, although limited approach to assess the learning environment unless it is triangulated against other methods. Over the last forty years LER has grown considerably, now boasting an array of widely applicable questionnaires that have been developed, tested and validated in a variety of settings and in a variety of countries (Fisher & Khine, 2006; Fraser, 2012; Zandvliet, 2012; Dorman, Fisher & Waldrup, 2006; Wubbels & Brekelans, 2012; Tal & Morag, 2007). During this time research in learning environments has "provided convincing evidence that the quality of the classroom environment in schools is a significant determinant of student learning" (Dorman, Fisher & Waldrup, 2006, p. 2). Reviews of LER have brought attention to the widespread use of both qualitative and

quantitative research methods in this field of study, and the evidence showing that learning environments are a strong predictor of learning LER (see Fraser, 2012; Dorman, 2002). Murray (1938), when referring to the study of the learning environment, used the term *alpha press* to refer to an external (outside) observer's perspective of a learning environment, and the term *beta press* to refer to the insiders' (internal) perspective, or better to put the participants of the learning environment under investigation. Stern, Stein and Bloom (1958) further developed Murray's (1938) ideas by arguing that the beta press could be separated between an individual's insider perspective of the learning environment (private beta press), and that of the whole insider group's perspective (consensual beta press). In current practices in LER, private beta press is recognized as data collected from interviews and focus groups with constituents of the learning environment (qualitative research methods) and data collected on the learning environment from surveys and questionnaires (quantitative research methods) representing consensual beta press (Zandvliet, 2012).

While Fraser (2012) lists a number of established learning environment questionnaires that have been validated and tested in numerous settings and countries, I will list here the LER questionnaires that were relevant to this study through their influence in the development of the Place-based Learning and Constructivist Environment Survey (PLACES). The questionnaire PLACES is a learning environment instrument developed to describe and measure "student perceptions of environmental education in place-based education settings" (Zandvliet, 2012, p. 125).

The PLACES was developed by Zandvliet (2012) with the collaboration of British Columbia K-12 and community teacher/environmental educators. (The development of PLACES is described further in Chapter 3). Through a number of workshops where participants reviewed established LER instruments, eight scales (Table 2) were identified as being representative of a learning environment associated with environmental education practices, such as experiential education, critical pedagogy, constructivism and place-based education: Relevance/Integration, Critical Voice, Student Negotiation, Group Cohesiveness, Student Involvement, Shared Control, Open Endedness and Environmental Interaction (Table 2). The LER questionnaires that were reviewed and influenced the final version of PLACES are listed below.

*Science Learning Environment Inventory (SLEI)* (Fraser, Giddings & McRobbie., 1995): An instrument developed to assess the environment in senior high school and post-secondary science laboratory classes.

*What Is Happening In this Class? (WIHIC)* (Aldridge, Fraser & Huang 1999): Similar to PLACES, this questionnaire is a combination of select constructs related to educational concerns at that time, such as equity and constructivism, from questionnaires already established to assess any classroom environment.

*Environment Science Learning Inventory (ESLEI)* (Henderson & Reid, 2000; Henderson, Fisher & Fraser, 1998): This LER tool was developed to assess the learning environment in senior high school Environmental Science classrooms. It has a compendium of constructs belonging to both the SLEI and the WIHIC.

*Science Outdoor Learning Environment Inventory (SOLEI)* (Orion, Hofstein, Pinchas & Giddings, 1997): With five of seven constructs coming from the SLEI, this questionnaire was developed to assess the psychosocial learning environment of high school science field trips in the outdoors.

*Constructivist Learning Environment Survey (CLES)* (Taylor, Fraser & Fisher, 1997): This instrument was developed for use as a reflective tool for teachers to identify the degree to which their classroom environment is in agreement with constructivist epistemologies.

*Outcomes-based Learning Environment Questionnaire (OBLEQ)* (Aldridge, Laugksch, Seopa & Fraser, 2006): In an effort to monitor and guide changes towards outcome-based education, this instrument was focused on assessing junior high school students' perceptions of their outcomes-based science classes.

*My Class Inventory (MCI)* (Fisher & Fraser, 1981): A simplified version of the Learning Environment Inventory (see Fraser, 2012), this questionnaire was developed for primary school students.

The eight scales that are measured in PLACES provided environmental educators with a representation (i.e. a descriptive curriculum theory) of how EE should be implemented in the classroom.

The eight scales in PLACES (Table 2) were used to both measure the perceived actual learning environment of the SEEDs module, as well as inquire into the students' preferred learning environment in a place-based, environment education course. The students were introduced to the eight scales at the start of the SEEDs module, and

support was offered if they cared to administer this survey in their own classrooms during their practicum. The questionnaire has two versions, an actual and a preferred, as do most LER questionnaires. The Preferred-PLACES has students rank the importance of the eight scales when reflecting on their preferred psychosocial learning environment. The Actual-PLACES questionnaire identifies the students' perceptions of the learning environment of a recently completed class using the eight scales as a measure. As mentioned earlier, the lower the gap between actual and preferred learning environments in a classroom/course, the greater the student learning in said environment (Fraser, 2012).

**Table 2. Description and Example of Item for Each PLACES Scale**

| Scale                     | Description  | Item   |
|---------------------------|--|--|
| Relevance/Integration     | Extent to which lessons are relevant and integrated with environmental and community-based activities.                     | Lessons are supported with field experiences and other field-based activities. |
| Critical Voice            | Extent to which the students have a voice in the classroom procedures or protocols.  | It's all right for me to openly express my opinion.                            |
| Student Negotiation       | Extent to which students can negotiate activities in their class.  | Other students ask me to explain my ideas.                                     |
| Group Cohesiveness        | Extent to which the students know, help and are supportive of one another.   | Members of this help one another during classroom activities.                  |
| Student involvement       | Extent to which students have attentive interest, participate in discussions, perform additional work and enjoy the class. | I pay attention.   |
| Shared Control            | Extent to which teacher gives control to the students with regard to curriculum/activities.                                | I help the teacher to decide which activities I do.                            |
| Open Endedness            | Extent to which the teacher gives freedom to students to think and plan own learning.                                      | I am encouraged to think for myself.   |
| Environmental Interaction | Extent to which students are encouraged in field or community-based experiences.   | Learning is very important for me during our field trips.                      |

Note: Adapted from Development and validation of the Place-Based Learning and Constructivist Environment Survey (PLACES), D. B. Zandvliet, 2012, Learning Environment Research, 5, 125-140. Copyright 2013 by D B. Zandvliet. Adapted with permission.

Therefore, LER not only influenced the research approach of this study in documenting this case-study of the pilot year of an EE module in teacher education, but also the PLACES instrument resulting from LER in EE provided a theoretical foundation for the curriculum of the SEEDs module and a descriptive theoretical framework for the teacher candidates to adopt in implementing EE in their own practices. In the following section I will elaborate more on these descriptive curriculum theories that were associated with the eight scales of PLACES that had been chosen by BC environmental educators as being representative of EE practice and its learning environment.

### ***Descriptive***

To remind the reader, descriptive curriculum theory addresses and/or proposes how things should be taught. The majority of international EE/ESD agreements, such as Agenda 21 and DESD prescribe what should be taught in the curriculum; unfortunately this does not help pre-service/teacher candidates and in-service teachers implement EE practices. This inconsistency has led to vagueness emerging amongst the general public, as well as amongst teachers themselves, with regards to what qualifies as environmental education.

Environmental education in all its diversity (see Sauv , 2005), has over the past thirty years become associated with a number of descriptive curriculum theories. One example of this was the development of the PLACES (Zandvliet, 2007; 2012), which again was composed of eight learning environment scales. Those being: Relevance/Integration; Critical Voice: Student Negotiation; Group Cohesiveness; Student Involvement, Shared Control; Open Endedness; and Environmental Interaction (Table 2). These scales were inspired by a number of popular, progressive and established curriculum theories. These eight scales are closely associated with experiential education; critical pedagogy; constructivism; and place-based education. These four descriptive curriculum theories influenced not only the SEEDs module curriculum, but also the teaching practice of the SEEDs student teachers.

### **Experiential Education**

While the experiences of reading books and attending lectures will always have important roles in learning, there does exist “many other strategies for stimulating

learning that can result in lasting knowledge” (Smith et al., 2011, p. 3). One of these being experiential education (ExpE). Kolb’s (1984) experiential learning model is one of the most popular examples to follow when being introduced to this curriculum approach. If one digs a bit deeper, the roots of experiential education can be traced back to Aristotle, Plato, and Socrates (Stonehouse, Allison, and Carr, 2011), and over the last century this field of study has been influenced by the work of John Dewey, Carl Jung, Jean Piaget, Carl Rogers, Kurt Lewin, and Paolo Freire (Kraft, 1995) and in particular, Maria Montessori, who Swiderski (2011) proposes is its founding mother. Direct experience is the keyword here. As stated by the Association for Experiential Education (AEE) experiential education “is a philosophy and methodology in which educators purposefully engage learners in direct experience and focused reflection (i.e. experiential learning) in order to increase knowledge, develop skills and clarifying values” (AEE, 2013, para. 2). Education depends upon experience, but experience alone is not sufficient. One must question, investigate, reflect on, and conceptualize the experience to truly find its worth.

The term experiential learning (EL) has been used interchangeably with ExpE with little regard for the differences inferred when switching the word *learning* to *education*. Itin (1999) points out “[l]earning is best considered as the process of change that occurs in an individual [...] Education, on the other hand, is best considered as transactive process between an educator and student” (p. 91). More recently, Smith, Knapp, Seaman and Pace (2011) open up this discussion again by claiming that...

*Learning is the personal, self-regulated acquisition of knowledge (concepts, skills, attitudes, values, and habits of mind) through a variety of ways and under different conditions. Learning occurs as a result of individual and group experiences provided by both formal institutions, such as schools, and through informal life situations occurring from birth until death....Achieving an education can be viewed as a sum total of knowledge gained, usually resulting from formal instruction (p. 3).*

Experiential learning is the learning theory associated with this approach. Here EL can be described as “a guided process of questioning, investigating, reflecting, and conceptualizing based on direct experience” (Itin, 1999, p. 92). The learning process starts off with an individual performing an action and then witnessing the effects of that action; the following step is to understand the effects of that action; the third step is to

understand the action itself, and the fourth and last step is to modify the action when confronting a new situation. This model thus defines learning as “the process whereby knowledge is created through the transformation of experience[;] [k]nowledge results from the combination of grasping and transforming experience” (Kolb, 1984, p. 41).

Experiential education is a curriculum theory, and educational philosophy, that is closely aligned with EE because of the value it places on direct experience, so much so that experiential education and EE have mistakenly become synonymous with one another (see Joplin, 1981). This has been the result of environmental education’s antecedent, outdoor education, whose subject matter included learning about the environment. Outdoor educators near its outset adopted experiential education as a curriculum theory and educational philosophy (Adkins and Simmons, 2002, p. 5). Look no further than adventure education programs whose learning process is based on the participants’ real-world (direct) experiences in the outdoors. It is these direct experiences with the content to be learned that has proven to be valuable. So much so, that ExpE and its associated experiential learning theory, have not only been embraced by EE but also by the larger education community. There is something quite special, practical and logical when one learns by doing.

## **Constructivism**

Over the last two decades in science and math education, the constructivist view of learning has become widely adopted into practice (Treagust, Duit & Fraser, 1996; Wanpen & Fisher, 2006). Constructivism is defined here as....

*...[d]rawing on a synthesis of current work in cognitive psychology, philosophy, and anthropology, the theory defines knowledge as temporary, developmental, socially and culturally mediated, and thus non-objective. Learning, from this perspective is understood as a self-regulated process of resolving inner cognitive conflicts that often become apparent through concrete experience, collaborative discourse, and reflection (Fosnot, 1993, p. vii).*

Environmental education and constructivism share teaching strategies. Both curriculum theories insist that the learner must take an “active role in learning and building factual knowledge to improve investigation and critical thinking skills” (Klein and Merritt, 1994, p. 13).

There are various subfields of constructivism, such as social constructivism; cultural-historical constructivism; psychological/cognitive constructivism; and radical constructivism (Fosnot, 1996). At the core of the term constructivism is the idea that something is constructed—built, assembled. In cognitive terms, the construction process involves the creation of cognitive schemata or structures for the organization and interpretation of information/experience. Learning involves the construction, elaboration, or modification of existing schemata or the creation of new ones. Sometimes it may involve the deconstruction of existing ones. Piaget (1951) described the two major processes of construction as assimilation and accommodation; whereby assimilation entails the learner changing or altering perceptions of their outside world to fit their internal world; and accommodation is where the internal world must change to fit the outside world.

Piaget's (1951) form of constructivism has been termed psychological and/or cognitive constructivism (Phillips, 2000). Piaget believed that because all humans in essence share the same brain, it can be assumed we all follow common developmental stages as we progress to a shared common end point. This process is termed decentering. But while we all may have the same decentering process, individuals may have different constructions (i.e. experiences) of reality. These differences may be accidental, such as a random experience, or systematic where it is assumed that children at different stages of their cognitive development do not think the same as knowledge builds on experience. The purpose of education, in a cognitive constructivist view, is to help the learner come to a correct view of the world through social experience (Phillips, 2000).

Social constructivism finds its roots in the belief that the knowledge we have of our external world is not an objective one but rather one that has been created and affected by political, religious, economical and sociological biases over the course of human history (Boudourides, 2003). Therefore while learning is a social endeavour, learners must also construct their own view of the world (Phillips, 2000). The social constructivist's objective is to help and encourage learners to create their own knowledge with the use of social tools and to understand that human knowledge is not to be taken as an objective truth (Windschitl, 2000).

Another form of constructivism is cultural-historical constructivism, with which Lev Vygotsky's (1994) work is most associated. What characterizes this form of constructivism from the others is its view that an individual or a culture does not create knowledge. Cultural-historical constructivists claim that knowledge is not completely created by an individual's perception but rather we use transmitted cultural tools and artefacts previously developed by our culture, and through social interactions we hone the use of these tools and artefacts. By perfecting and comprehending the mediated use of these cultural tools and artefacts, development in a learner occurs. This theory is what distinguishes Vygotsky from Piaget. Vygotsky believed learning precedes development, while Piaget argued that development preceded learning.

Lastly, we have radical constructivism that is most defined by the work of Ernst Von Glasersfeld (1995, p. 1).

*It starts from the assumption that knowledge, no matter how it is defined, is in the heads of persons, and that the thinking subject has no alternative but to construct what he or she knows on the basis of his or her own experience. What we make of experience constitutes the only world we consciously live in. It can be sorted into many kinds, such as things, self, others, and so on. But all kinds of experience are essentially subjective, and though I may find reasons to believe that my experience may not be unlike yours, I have no way of knowing that it is the same.*

The argument here by Von Glasersfeld (1995) is that while we are the ones responsible for the world we are part of, "[w]e build that world for the most part unaware, simply because we do not know how we do it" (p. 1). This does not have to be the case, which is what radical constructivism maintains: "the operations by means of which we assemble our experiential world can be explored, and that an awareness of this operating...can help us do it differently and, perhaps, better" (p. 1).

The foundation, and epistemology, of constructivism "assumes that students learn on the basis of their interaction with their environment" (Wanpen & Fisher, 2006, p. 298); but that "knowledge is actively constructed by the cognizing subject, not passively received from the environment" (Lerman, 1989, p. 211). It is a belief that the acquisition of knowledge comes from a change in a student's understanding rather than simply an increase in information taken to be fact (Ballantyne & Packer, 1996). Constructivist

teaching focuses on problem solving and critical thinking, and higher-order cognitive outcomes. These higher forms of learning, while challenging to accomplish in instruction, are critical objectives for education and training, and closer to the demands of expertise in the “real world.’

## **Critical Pedagogy**

Critical pedagogy finds a place in the teaching portfolio of environmental educators due largely for its emphasis on critical thinking; and learning from/empowering the community - something that it also shares with place-based education which I will discuss in the next section (see Gruenewald, 2003). Having said, the roots of our current interpretation of critical pedagogy can be traced to a number of 20<sup>th</sup> century social theorists, such as Antonio Gramsci (see 2006) and Paulo Freire (see 1968/2005),

Socialization is one of the purposes widely accepted as a role for schools. Eisner (1985) claims that research has “illuminated the ways in which the culture of both the classroom and the school socializes children to values that are a part of the structure of those places” (p. 88). Critical theorists believe that our present school systems produce (i.e. socialize) uncritical, patriotic and compliant workers for a nation’s marketplace; feeding the needs of the wealthy and the privileged by continuing the dominant status quo from generation to generation (McLaren, 1998). Scholars such as Friere (1968; 2005) and Henry Giroux (2001) for this reason distinguish between schooling and education.

The former is primarily a mode of social control; the latter has the potential to transform society, with the learner functioning as an active subject committed to self and social empowerment. (McLaren, 1998, p. 169)

From the influences of thinkers such as Freire (1968; 2005), Giroux (2001) and McLaren (1998), critical pedagogy today aims to provide awareness of the role schools have in addressing the link between knowledge and power.

*The role of an educator who is pedagogically and critically radical is to avoid being indifferent, a characteristic of the facilitator who promotes a laissez-faire education. The radical educator has to be an active presence in educational practice. But, educators should never allow their active and*

*curious presence to transform the learners' presence into a shadow of the educator's presence. Nor can educators be a shadow of their learners. The educator who dares to teach has to stimulate learners to live a critically conscious presence in the pedagogical and historical process (Freire & Macedo, 1995, p. 379).*

Critical pedagogy, in “stimulating learners to live a critically conscious presence...” do so with the aim of developing critical and active citizens.

Critical pedagogy, although having ties to social critics Antonio Gramsci and the Frankfurt School of Critical Theory (McLaren, 1998; Morrow & Torres, 2001), it has been the work of Paulo Freire (1968/2005) that has formed its practice today. In the work of Freire there were four fundamental contributions made to education, and more specifically to critical pedagogy. These are:

1. The emphasis on dialogue; it should involve respect; not one acting on the other but people working with one another.
2. Concern for praxis or rather informed action in the community.
3. The development of conscientiousness, or as Freire put it *conscientization*
4. Structuring activities in education around the learner's lived experience.

In addition, a traditional Freirian practice would insist that at the start of a program an educator must first learn from the learner. Most often this would be done by the educator going to the community of the learner. This was a strategy to combat the modernist concept of 'banking education'; such that the outsider believes “knowledge is a gift bestowed by those who consider themselves knowledgeable upon those whom they consider to know nothing” (Freire, 1968/2005, p. 72). Lastly, Freire encouraged people and communities to envision a better world and society; and with the support of these groups, strategize ways of overcoming obstacles to reach specific goals. He theorized that what arises is a strong sense of community; a term that returns again and again throughout this case-study of the SEEDs module.

## **Place-based Education**

The concept of place-based education (PBE) is a cross-curricular and instructional approach that over the years has also been referred to as community-

oriented schooling, ecological education, and bioregional education (Woodhouse & Knapp, 2000). Due to its interdisciplinary connections PBE is difficult to define. Early work by Sobel (1993; 1999) had described the concept of PBE, but has since been expanded and developed by others in community contexts (Hutchinson, 2004), eco-literacy (Orr, 1992; 1994), experiential learning (Woodhouse & Knapp, 2000), and critical pedagogy (Gruenewald, 2003). As Gruenewald (2003) also explains, PBE does not have its own theoretical tradition, rather it is an assimilation of theories belonging to experiential learning, contextual learning, problem-based learning, constructivism, outdoor education, indigenous education, environmental education, as well as others that share in emphasizing the value of learning from one's own community or region. This has paralleled a growing trend in North America and other parts of the world that have seen a dramatic rise in "programs teaching indigenous knowledge and philosophies for the benefit of both indigenous and nonindigenous students" (Lowan-Trudeau, 2013, p. 404).

Sobel (2004) chooses to identify PBE as "the process of using local community and environment as a starting point to teach concepts in language arts, mathematics, social studies, science, and other subjects across the curriculum" (p. 7). In practice it is about:

*Emphasizing hands-on, real-world learning experiences, this approach to education increases academic achievement, helps students develop stronger ties to their community, enhances students' appreciation for the natural world, and creates a heightened commitment to serving as active contributing citizens. Community vitality and environmental quality are improved through the active engagement of local citizens, community organizations, and environmental resources in the life of the school.* (Sobel, 2004, p. 7)

In the most general sense, this approach is "designed to help students learn about the immediate surroundings by capitalizing on their lived experiences" (Knapp, 2005, p. 278).

The connection to community vitality and environmental quality that Sobel (2004) speaks of is an important point. Loss of community translates into loss of culture,

and what unfortunately results in complete deterioration of a society. As Barnhardt and Kawagley (in Lowan-Trudeau, 2013, p. 405) point out:

*Indigenous peoples throughout the world have sustained their unique worldview and associated knowledge systems for millennia, even while undergoing major social upheavals as a result of transformative forces beyond their control...the depth of Indigenous knowledge rooted in the long inhabitation of a particular places offers lessons that can benefit everyone, from educator to scientist, as we search for a more satisfying and sustainable way to live on this planet.*

Kelly (2010, p. 83) goes on to say:

*Many of the core values, beliefs and practices associated with those worldviews have survived and are beginning to be recognized as having an adaptive integrity that is as valid for today's generation as it was for generations past. The depth of indigenous knowledge, rooted in the long inhabitation of a particular place, offers lessons that can benefit everyone as we search for more satisfying and sustainable ways to live on this planet.*

This knowledge of *place* has been termed Traditional Ecological Knowledge (TEK) for it is the “culturally and spiritually based way in which indigenous people relate to their ecosystems” (LaDuke, in Lowan-Trudeau, 2013, p. 405). The ancient roots of indigenous knowledge have a wealth of information of ecological systems that would benefit resource management, ecosystem protection and a more sustainable way of life (Kelly, 2010; Lowan-Trudeau, 2013).

Smith (2002), and Woodhouse and Knapp (2000) have both acknowledged common forms and characteristics of place-based education. Smith (2002, p. 593) identifies a number of common place-based education forms whereby:

- surrounding phenomena are the foundation for curriculum development
- there is an emphasis on students becoming the creators of knowledge rather than only consumers of knowledge created by others
- students' questions and concerns play central roles in determining what is studied,
- teachers act primarily as co-learners and "brokers" of community resources and learning possibilities,

- the walls between the community and school buildings are crossed frequently, and
- student work is assessed based on its contributions to community wellbeing and sustainability.

Woodhouse and Knapp (2000, p.1) claim that place-based education has the following common characteristics:

- the curriculum content is multidisciplinary
- the curriculum goals are broader than just "learn to earn;" and
- the curriculum integrates self, others, and place and includes ecological, economic, multigenerational, and multicultural dimensions.

Using the surrounding phenomena as the foundation for curriculum development has consequential benefits: student achievement improves, students' interest in their community increases, community members are more connected to the schools and students, and teachers are more satisfied with their professions (Basile, 2000; Cummins & Snively, 2000; Kenney, Price-Militana, & Horrocks-Donohue, 2003; Lieberman & Hoody, 2000). Research conducted by Vaske and Kobrin (2001) argues that environmental education or work programs that take part in local natural settings may promote environmental stewardship in an individual's own community. In the study, place attachment was represented by place dependence and place identity. Their definition of place dependence is that of functional attachment whereby a particular setting, over time, has become an important resource to provide necessary amenities for specific activities. On the other hand, place identity is defined as an emotional attachment that is a psychological investment with a setting that had resulted from numerous visits to that setting. Moore and Graefe (as cited in Vaske & Kobrin, 2001) claimed that place dependence leads to place identity, and in turn, place identity leads to environmentally responsible behaviour to that setting, such as picking up trash or helping to save a salmon habitat in a local park. Vaske and Kobrin (2001) also suggest that environmentally responsible behaviour for a local setting can then lead to environmentally responsible behaviour outside the particular locality.

Smith (2002; 2007) identified five thematic patterns, all of which "contribute to local community development and regeneration"(Smith, 2007, p. 191). These are:

Cultural historical investigations: *Where students use local cultural or historical phenomena as the guiding focus. Collecting community oral histories and written stories are only two examples of this approach. (These activities also have been labelled cultural journalism, experiential or outdoor education.)*

Environmental monitoring and advocacy: *Where students observe wildlife, conduct water-quality tests, or restore riparian areas. (These activities also have been labelled nature study, conservation, outdoor, or environmental education.)*

Real world problem solving: *Where students and teachers identify community issues and problems, study them, and propose possible solutions. Sometimes they even follow up their research by implementing the needed changes. (These activities also have been called conservation or environmental education).*

Entrepreneurialism: *Where students explore local career opportunities and partner with businesses to expand their knowledge of economics and become more involved in community life. (These activities also have been labelled service-learning, experiential or outdoor education.)*

Involvement in public processes: *A more complete immersion into community life in which students were drawn into several decision-making activities. They assumed active roles as participants at town meetings, chambers of commerce, city councils, or environmental protection agencies. They might also conduct community surveys and make public announcements based on those findings. (These activities also have been labelled service learning, environmental, or experiential education.)*

Further, Knapp (2005) states, “all five patterns form a conceptual umbrella commonly called experiential learning, because they are situated in the context of community life and involve active student engagement” (p. 280).

One of the greatest appeals of PBE is the ability it has “to adapt to unique characteristics in particular places” (Smith, 2002, p. 584). This trait of PBE makes it a strong tool to “overcome the disjuncture between school and children’s lives that is found in many classrooms” (Smith, 2002, p. 585). Smith (2002) restates Dewey’s conviction that the issue lies in the fact that children are not interested in ideas about phenomena but rather drawn to the actual phenomena. Although agreeing with Dewey (1907), Smith adds that “valuable knowledge for most children is knowledge that is directly related to their own social reality, knowledge that will allow them to engage in activities that are of

service to and valued by those they love and respect” (p. 585). A very similar definition to experiential education.

## **Environmental Learning and Experience Guides**

As noted earlier, ideally both prescriptive (what we should learn) and descriptive (how we should teach it) curriculum theories should be compatible. In 2007 the British Columbia Ministry of Education published an EE framework that was both prescriptive and descriptive in nature. The *Environmental Learning and Experience (ELE) Curriculum Framework*, as the framework became to be known, focused on providing a single interdisciplinary approach to EE for all K-12 educators across the province of BC. As noted on the BC Ministry of Education’s (2007, para. 1) website:

*This guide is provided to assist British Columbia teachers of all subjects and grades to integrate environmental concepts into teaching and learning. Designed as a support framework to guide teachers in their education planning, the guide also aims to support the implementation of many of the curriculum packages and will be complemented by web resources to support environmental learning in diverse subjects like science, social studies and language arts.*

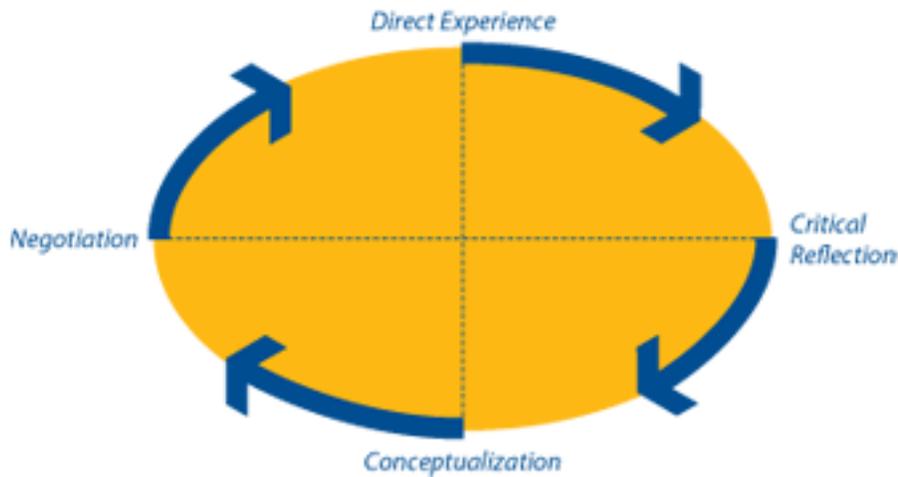
The foundation of this framework was set earlier in 1995, with the publication of *Environmental Concepts in the Classroom: A Guide for Teachers* (British Columbia Ministry of Education, 1995). The aim of this “guide and related documents [was] the belief that students should understand both how and why the environment has an impact on their lives, and what kind of an impact their daily lives have on the environment” (Zandvliet 2013, in press). By 2005, environmental education had seen numerous new and innovative trends emerge (see Sauv , 2005), in addition to a number of international meetings on environmental and sustainability topics, such as the *Kyoto Protocol*, *Johannesburg World Summit on Sustainable Development*, and the proclamation of the *UN Decade of Education for Sustainable Development*. As well, “this momentum was accompanied by new research on how people learn and on what constitutes a quality educational experience (see for example Hart, Jickling and Kool, 1999) (Zandvliet 2013, in press). With that in mind, in 2005 a group of environmental educators and teacher groups, in partnership with the Faculty of Education at Simon Fraser University, decided

to collaborate with one another to revise and update the BC Ministry of Education's 1995 EE framework.

Following a participatory research model (see Coghlan & Brannick, 2001) the initial stage of the ELE framework was a critical document analysis of environmental education frameworks and resources from across North America and around the world. Following that, six working meetings were conducted across the province of BC with teachers, academics and government officials over the course of sixteen months.

For each *working* meeting (or consultation), participants were provided with the original government document: *Environmental Concepts in the Classroom* (British Columbia Ministry of Education, 1995) as well as a variety of readings and frameworks published in other jurisdictions. Participants were then organized into small working groups each tasked with re-visioning or repurposing certain aspects of the original document (acting as quasi-editors for example), while after each working session these groups reported back on their work to the whole community to have their ideas further scrutinized or enhanced. ( (2007, 2013, in press)

The resulting environmental learning framework, agreeing to adopt the Government of Canada's (2002) language, was a conceptual view of environmental learning in all educational settings (prescriptive curriculum theory), as well as providing several teaching and learning principals (descriptive curriculum theory) to act as guide and resource to K-12 educators in integrating environmental learning activities in an array of learning contexts and settings. The two main teaching and learning principles in the ELE framework are: 1) direct experience; and, 2) critical reflection and negotiation. Direct experience speaks to the necessity of having a direct connection with the outdoor environment, both individually and in groups, in order to develop environmental stewardship. Critical reflection and negotiation are essential skill sets to be developed by students in order for them to approach environmental issues from multiple perspectives, in addition to identify common themes and ideas that may be shared among those perspectives. These principles make up what it calls the *Experiential Learning Cycle Model* (Fig. 1).



**Figure 1. Experiential Learning Cycle Model**

Note: Taken from Environmental learning and experience: An interdisciplinary guide for teachers, by BC Ministry of Education, 2007, Victoria, BC: BC Ministry of Education. Copyright 2013 by BC Ministry of Education. Adapted with permission.

This model conceptualizes experiential learning as “a guided process of questioning, investigating, reflecting, and conceptualizing based on direct experience” (Itin, 1999, p. 92). The individual has a direct experience, reflects on that experience, begins to conceptualize new knowledge based on the reflection of said direct experience, and then negotiates new understanding with that of others to investigate other perspectives.

*In this model, environmental knowledge is not to be viewed as stable, and often can be conditional as our developing knowledge grows from exposure and experience. In the learning cycle model, teachers emphasize thinking, understanding and self-managed learning for their students. (BC Ministry of Education, 2007, p. 9)*

This process should not be understated; as it is not what direct experience does to you that matters, but what you do with that experience, such as questioning, investigating, reflecting, and conceptualizing the experience.

The ELE (2007) provides a number of suggested practices for teachers when designing environmental learning experiences for students:

*Encourage the integration of subjects/multidisciplinary approaches:* Environmental education may be viewed to be an example of cross-curricular or integrated learning.

*Encourage critical reflection on a range of perspectives:* Education provides a range of perspectives and viewpoints. It is important to provide the tools to think critically and to analyze issues from multiple perspectives.

*Examine issues for their currency and authenticity:* In the study of issues and concerns related to the environment, it is important to stay current and have students engage with issues relevant to their communities.

*Acknowledge aboriginal perspectives:* In learning about environmental issues, the First Peoples Traditional Ecological Knowledge (TEK) of specific landscapes, regions or ecologies can be an important component of culturally appropriate and responsive, environmental education.

*Acknowledge other perspectives:* B.C. is a multicultural province, and there are diverse perspectives on the environment, other than those of Euro-Canadians. It is important that other cultural and religious perspectives are acknowledged, respected and analyzed in terms of their implications for issues.

*Consider the place of action:* It is important for students to understand the variety of ways in which action can take place and the consequences of those actions on the environment.

*Consider issues from both local and global perspectives:* While the majority of environmental education activity will be focused locally, there is great need for a global perspective. Actions taken at a local level have global ramifications that should also be considered when making decisions.

*Occur within a context of hope:* Thinking and communicating about the environment sometimes focus on extreme “doom and gloom” scenarios for the future of the planet. Teachers should encourage a more positive outlook and focus on the challenge and excitement of exploring solutions to complex problems.

*Encourage humility:* One aspect of the human world view that has contributed to many of our environmental problems is the idea that nature should be controlled by humans. Humility can help us understand how we can live in balance with nature and how individual actions can make a difference.

This approach was given the mnemonic of C.A.R.E: Complexity; Aesthetics; Responsibility; and Ethics (Fig. 2). Complexity refers to the consideration that all life on earth depends on and is a part of complex systems, both human-created and natural.



**Figure 2. The principles for organizing and conceptualizing environmental education.**

Note: Taken from Environmental learning and experience: An interdisciplinary guide for teachers, by BC Ministry of Education, 2007, Victoria, BC: BC Ministry of Education. Copyright 2013 by BC Ministry of Education. Adapted with permission.

Aesthetics acknowledges the need to simply appreciate the environment for its beauty, artistic impressions and our own physiological responses to it. Responsibility speaks to “the study of human impact on the environment, [where] students can explore and develop positive approaches to long-range environmental concerns” (BC Ministry of Education, 2007, p. 13). Lastly, the development of an environmental ethic is...

*...perhaps a culminating goal for environmental learning in that it requires an understanding of all of the previous forms of environmental concepts described. Understanding the complexity of their daily interactions, while also recognizing the aesthetics of their environment, will help students take active responsibility in moving toward change. When this happens, an environmental ethic can become part of the moral fibre of their identities (p. 14).*

As has been highlighted throughout this thesis, this ELE framework was adopted by the SEEDs module in its own practice, but also highly recommended to its teacher candidates as a framework to follow in their own practice. The next section provides some background on EE, such as the ELE framework, in teacher education programming.

## Teacher Education and Environmental Education

Although research in teaching has been documented for over a century, it is surprising that Teacher Education Research (TER) is still in its infancy (Grossman & McDonald, 2008). It has only been since the 1970s that TER became a legitimate field of study in education at the graduate level (Zeichner & Conklin, 2005). Grossman and McDonald (2008, p. 185) also note that...

*...early Handbooks of Research on Teaching (Gage, 1963; Travers, 1974) did not even include chapters on teacher education; in fact it was not until the third handbook (Lanier & Lanier, 1986) that the editors devoted a single chapter to research in teacher education.*

In North America, until the founding of Division K, Teaching and Teacher Education by the American Educational Research Association (AERA) in 1984, elements of TER were conducted by individuals who were identified with a very small special interest group within the association” (Zeichner & Conklin, 2005, p. 80). As a result of this TER “has developed in curious isolation both from mainstream research on teaching and from research on higher education and professional education more generally” (Grossman & McDonald, 2008, p. 185). Grossman and McDonald argue further that TER “is somewhat of an orphan, connected to neither of its natural parents” (2008, p. 185).

Teacher education research in its early stages was characterized by questionnaires surveying practices by teachers, and studies aiming to identify what elements characterize a good teacher (or effective teaching). In the 1960s and early 1970s TER began to see the use of more qualitative approaches that incorporated...

*naturalistic and interpretative methodologies, such as ethnography, case study, narrative inquiry, biography, and life history[,,,]as well as various critical, feminist, and poststructural analyses of different aspects of teacher education. (Zeichner & Conklin, 2005, p. 80).*

These interpretative approaches in TER later gave way in the 1990s to research being done by teacher educators themselves on their programs and practices. Zeichner and Conklin (2005) argue that the popularity of the self-study in TER, is a result of a lack of available funding for multiple program investigations. As a consequence some teacher educators claim that they and their programs have benefited from their self-study

research, and researchers argue that this form of inquiry and action research “provides a unique perspective on teacher education not obtainable from the outside (Cochran-Smith & Lytle in Zeichner & Conklin, 2005, p. 81).

Zeichner and Concklin (2005), building on the work of Koehler (1985), identify five major areas of TER, in the United States:

1. Surveys of current practices
2. Conceptual, historical, and comparative studies of teacher education
3. Studies of the process of learning to teach
4. Studies of teacher education participants (teacher educators and candidates)
5. Studies of the nature and impact of teacher education (e.g. specific programs, courses and program components; and instructional strategies) and of policies that affect teacher education.

The earliest documented research investigating EE in teacher education in Canada was conducted by Rioux (1973) and later by Davis (1976). The research of Rioux (1973) noted that environmental education in Canada, at that time, was analogous with outdoor education and therefore focused on the natural environment. In addition, Rioux (1973) found little evidence of environmental education in teacher education programs in Canada; only 9 of the 41 Canadian tertiary education institutions had some sort of environmental education programming. The report published by Davis (1976) surveyed all of Canada to find what environmental education legislation existed in each province and territory. What Davis (1976) found was that some sort of EE existed in each province with or without legislation, and that EE was not only the prerogative of the Ministry/Department of Education but also that of the Environment, and of Fisheries. This was followed soon after by the work of John Towler (1980/81). The Towler study, which was similar to Rioux’s (1973) surveyed 41 Canadian tertiary education institutions that host teacher education programs. Towler reported that of the 41 institutions surveyed during the 1977/78 Academic Year, 18 offered an EE methods course. He also pointed out that of those EE courses offered, they focused on ecology, outdoor education and biology methods rather than on abilities and strategies to reach EE objectives (Lin, 2002). This research was replicated nearly twenty years later by Lin (2002).

Lin (2002) investigated if there had been any changes in teacher education programs in Canada since Towler's (1980/81) study by replicating an updated version of Towler's questionnaire. Therefore, Lin (2002) could compare her results in 1996 to Towler's (1980/81) results of the Academic Year of 1977/78. The results from her study were anything but good news. Lin's (2002) survey revealed, "the preparation of pre-service teachers currently remains at an inadequate and underdeveloped level in Canada" (p. 211). Of the 35 teacher education programs she surveyed, only 12 offered courses specifically on environmental education, and six others stated that it was a component of other methods courses. When comparing the work of Towler (1980/81) and of Lin (2000; 2002) we see that from 1978 to 1996, environmental education in teacher education programs had in fact declined and not increased as had been assumed. The number of Canadian tertiary education institutions that offered environmental education courses in their teacher education programs dropped from 43% to 35% from 1978 to 1996. She also commented, as had Towler (1980), that "[p]re-service environmental education courses tend to emphasize ecology, conservation education, outdoor education, and biology" (Lin, 2002, p.212). McKeown and Hopkins (2003) shared the same sentiments when they stated that environmental education programming at that time had not changed much from its foundational and defining background on a concern solely for the natural environment, and ignored the urban environment where the majority of people live, work and go to school. For the most part, educators continue to interpret EE as studying nature or ecology, and not involving the urban or the human-built environment. In the chapter *The Place of the City in Environmental Education*, McClaren's (2009) delves into why cities are so omitted from EE.

*Is this because the reality of urban life is so apparent as to be taken for granted, so obvious that it requires no educational attention? Is the focus of getting students out – out and away from cities and back into environments presumed to be more "natural", healthier, less stressful, more beautiful? (p. 302).*

Beckford (2008) published an analysis of EE in teacher education programs in Ontario. What he found was reminiscent of earlier research, discovering that little change has been seen over the course of thirty years since the signing of the Tbilisi Declaration:

*An interdisciplinary and whole school approach to teacher education in EE could do well, but EE, where it does exist in preservice teacher education programs in Ontario, tends to be a small component in science, geography, and social studies units (Beckford, 2008, p. 56).*

Beckford (2008) while noting that Teacher Education Research on EE is rare in Canada, refers to a study done of teacher education programs in Ontario less than seven years ago by Pandya (2006) which reported that pre-service teachers were provided with very little opportunity “to learn whole school approaches to EE that would take them outside the traditional school curriculum (in Beckford, 2008, p. 56). A recent publication by the Council of Ministers of Education, Canada – CMEC (2012) may be helping to change this.

In 2012 the Council of Ministers of Education, Canada – CMEC, released a report of a nation-wide study of Canadian faculties of education “to better understand how they are incorporating ESD into their pre-service programs, research and other activities (CMEC, 2012, p. 7). Of the sixty-two faculties of education that were contacted to participate in this study, thirty-six responded. Not surprisingly, from those thirty-six universities that responded a majority of them claimed that they were making an effort, at some level, to integrate ESD into their teacher education programs. They also claimed that while ESD focused courses were not common, ESD-like principles existed already in their program bundled with science and social studies design courses as well as sustainability being an underlying principle of the teacher education program. This was not the case for the FoE at SFU, and why the SEEDs module was a unique occurrence in the teacher education landscape of Canada. The following Chapter will discuss in detail the research methodology of this case-study.

## **General Summary**

Over the last forty years, environmental education has taken on a number of different forms and currents (see Sauv , 2005). This diversity exists because of the variety of ways EE is practiced. Having said that, there is a general tendency for EE programming to adopt approaches and elements associated with experiential education, critical pedagogy, constructivism and place-based education. The environmental

education pedagogy of the SEEDs module infused these four curriculum theories to its teaching, and in turn to student learning.

Teacher education research is a relatively new field, and so is EE in teacher education. The SEEDs module provided an opportunity to describe and measure the psychosocial learning environment of an EE teacher education program. The learning environment research questionnaire that was selected was the Place-based Learning and Constructivist Environment Survey (PLACES) which was developed and measures “student perceptions of environmental education in place-based education settings” (Zandvliet, 2012, p. 125). The following chapter will speak more about the PLACES questionnaire and methods used during this study to collect data with the hope of providing an accurate account of the student experience.

## Chapter 3.

# Research Design and Methodology

## Research Setting: PDP and SEEDs Module

The PDP of SFU was initially developed by Dr. John Ellis, the first Director of SFU PDP, in 1965 (see Ellis, 1967). In his paper *Who Should Teach Teachers?* Ellis writes about his experiences in what was “a unique opportunity for the faculty of education [at SFU] to establish a staffing pattern that would contribute directly to the goals of the faculty” (Ellis. 1965, p. 423). The SFU FoE wanted to avoid the issues that the teacher education programs in sister universities were facing; such as “the parasitizing of the teacher education program by the graduate program” (Ellis, 1967, p. 423). Ellis (1967) argues and identifies the five sets of teachers that a student who completes a PDP at SFU encounters: 1) Prior Experience – the background a student comes in with into PDP; 2) Professors in Academic Departments - the professors students have had prior ; 3) School Associates – the in-service teacher who mentors the students during the practicum; 4) Faculty Associates – the in-service teacher who mentors them during the on-campus programming ; and 5) the Professor of Education, or in this case the Faculty Sponsor, - who leads their module or cohort in PDP.

The SEEDs module was just one of twenty-eight different modules offered to potential students applying to SFU’s PDP, and at the time when this research was initially undertaken only fifteen were offered. How the modules differed depended primarily by their curriculum orientation, and on the strengths and areas of expertise of their corresponding Faculty Associates (FA) and Faculty Sponsor (FS). The goals of SFU’s PDP in the Faculty of Education are

1. The development of a clear, coherent and justified view of education that enables one to: understand the place of education in an open,

pluralistic and caring society; determine the content, methods and institutional arrangements that are relevant, worthwhile and appropriate for the education of children; have a personal vision of what one can achieve as an educator; understand how schooling and other institutions influence students

2. The development of a clear commitment to: respect students as persons with varied interests, backgrounds, points of view, plans, goals and aspirations; care about students and their individual development, uphold standards of excellence inherent in various forms of inquiry; uphold the principles that ought to govern a civilized, democratic and pluralistic community; establish and maintain ethical working relationships with all members of the educational community.
3. The development of clear commitment to lifelong learning manifest in: openness to alternatives and possibilities; reflective practice; engagement in dialogue and collaboration with colleagues, students, parents and others in the educational community; ability to form and reform ideas, methods, techniques; setting an example to students; stimulating students to be continuous learners.
4. The development of ability to be a thoughtful and sensitive observer of what goes on in the classroom
5. The development of ability to create opportunities for learning that are: engaging and imaginative; significant and relevant to pupils' educational development; intellectually challenging; sensitive to issues of social equity and cultural diversity; appropriate to building habits of sound thinking; responsive to students' individual learning needs; reflective of growing understanding of what goes on in the classroom; consonant with learning goals.
6. The development of ability to put educationally sound curriculum ideas into practice in well-organized ways.
7. The development of knowledge about: teaching subjects; how individuals and groups of students learn; evaluation practices.
8. The development of ability to use evaluation and assessment practices that: use evaluative data as a means of furthering student learning; appreciate the subjectivity of evaluation; make use of varied practices that are congruent with learning goals; respect the dignity of each learner; show understanding of the moral implications of evaluation and assessment practices; promote self assessment.
9. The development of ability to use classroom interactions that: show caring and respect for every student; encourage learners to clarify and examine their ideas; are authentic, unpretentious and honest; communicate openness, a tolerance for uncertainty, and appreciation of the spirit of inquiry.
10. The development of appreciation for and skill in organizing harmonious working groups, and interpersonally sound working relationships among students.

11. The development of ability to observe, understand and respond respectfully to students with different learning styles and learning difficulties.
12. The development of appreciation for and ability to be flexible about curriculum — recreating, re-inventing, re-constituting, and discarding practices that have been observed, upon reflection, to be inappropriate to individual and group learning needs.

These twelve goals of PDP are argued to also be present in the ten goals of SEEDs (see Appendix A).

Each module is led by two Faculty Associates (FA), and a Faculty Sponsor (FS). In the staffing structure of the PDP, an individual FA is normally a practicing BC teacher who is recruited from the K-12 school system and appointed at SFU on secondment from their regular school district for a 1-2 year-term. Their major role is to work in the instruction and classroom supervision of pre-service student teachers. In the FoE at SFU core tenure track Faculty are given opportunities to act as Faculty Sponsors (FS) of special emphasis teacher education student modules. An incentive for taking on this role is that they may extend their research interests through their work with a module. Faculty sponsors may involve themselves with module programming in a variety of ways, including working with module instructors, who are known as Faculty Associates (FA).

Each module can have from 16-32 students. When applying to PDP, students chose from a number of modules they would be interested in being a part of. Upon reviewing their application and teaching experience, they are then placed in the module that a PDP committee believes best fits the student.

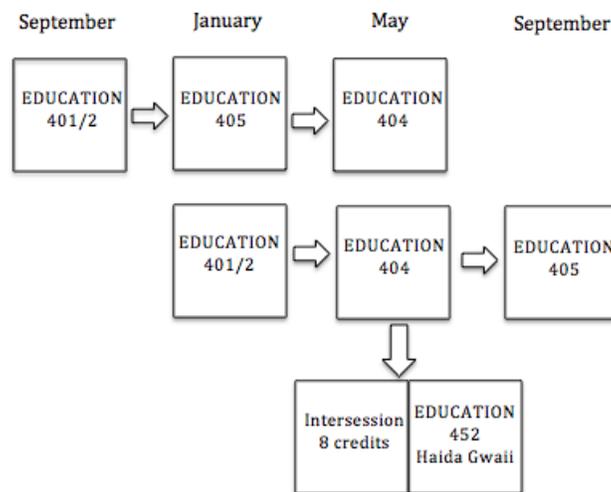
There are two intakes to the PDP, one in September and one in January with both lasting 12 months. To complete the program, pre-service teachers must complete three stages, or semesters: Education 401/2, Education 404, and Education 405. As described in the Professional Development Program (n.d.) outline:

*Education 401/402: Integration of Theory and Practice:* In Education 401/402, you study teaching through the integration of in-classroom practicum experiences and instructional seminars. This integrated experience makes it possible for you to grow in your understanding of the relationship between educational theory and classroom practice

*Education 404: Professional Coursework Semester:* In Education 404, you choose from a variety of professional courses offered by the Faculty of Education—courses that will build on teaching strengths, and eliminate deficiencies in the preparation for teaching.

*Education 405: Teacher Semester:* In Education 405, you are assigned to a classroom for 10 to 12 weeks of student teaching experience. During this semester, the School Associate and Faculty Associate provide help and guidance, as well as make assessments of your growth toward the achievement of standards of professional competence.

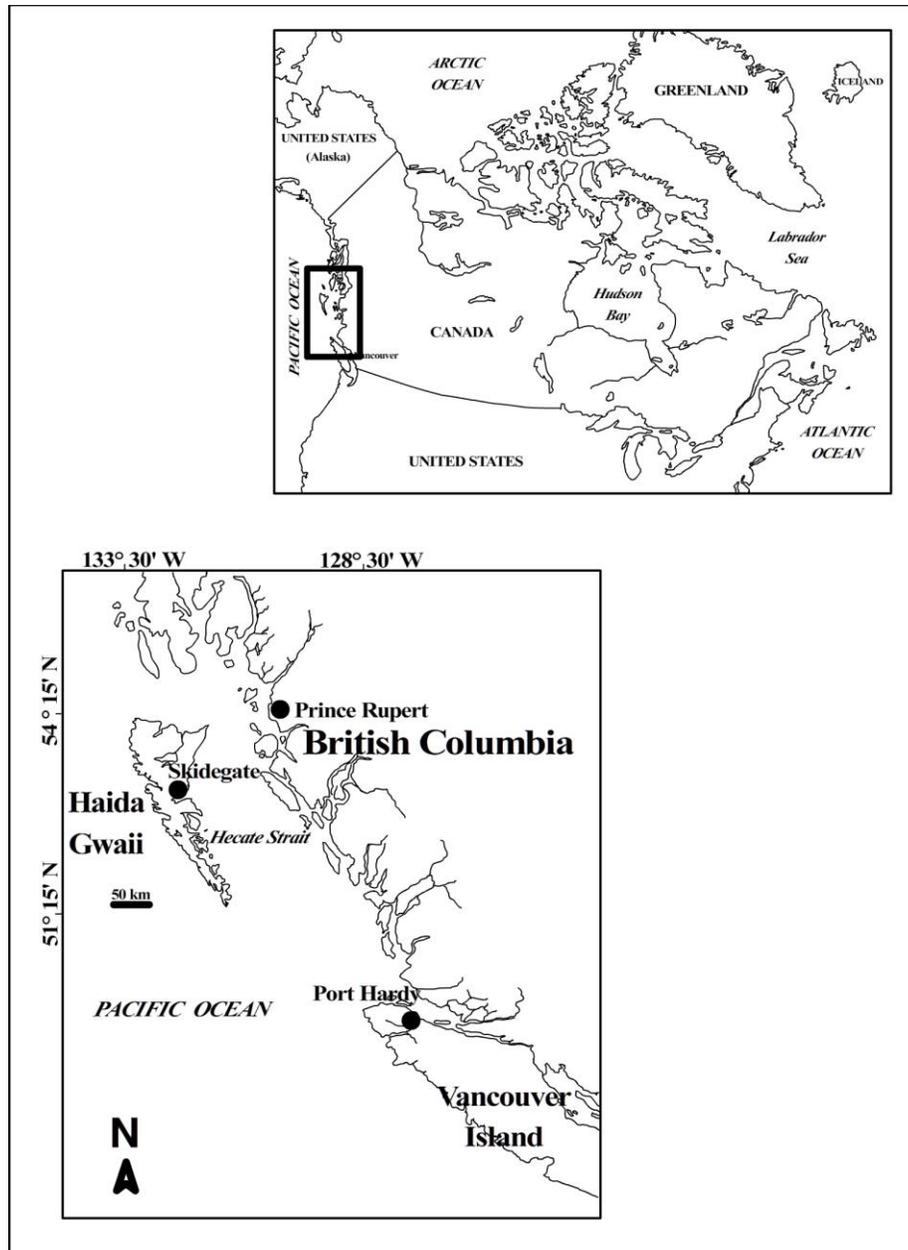
These stages of PDP fulfill the objective of a “teacher education program that incorporates practical experiences and university coursework, in approximately equal portions.” (“Professional Development Program”, n.d.).



**Figure 3. Semester format for September PDP intake and January PDP Intake along with the SEEDs module required EDUC 452 in the Education 404 Semester.**

In the September intake, Education 405 is offered immediately after Education 401/2, while in the January intake it is offered after Education 404 during the last semester of PDP. The reasoning for this is that Education 405 is the long practicum semester and schools are closed during the summer months, so the long practicum is organized when teachers are in schools. The summer term (Education 404) is the

perfect time to take traditionally campus-based theory and design courses. Students are required to register for up to 16 credits (1 course = 4 credits).



**Figure 4. Map of Canada, British Columbia and Haida Gwaii**

The SEEDs module was a January intake module. It was distinct from the others in that it required its student teachers to take an 8 semester hour course EDUC 452 Environmental Education (Haida Gwaii) - During the Summer session of Education 404

(Fig. 3). In 2011 Education 452 in the SEEDS module was offered as a field course based in the community of Skidegate, on the islands of Haida Gwaii off the coast of British Columbia (Fig. 4).

## Data Collection and Analysis

By definition this research is a case-study of the SEEDs module. A case-study is another form of social science research, such as experiments, surveys, histories and the analysis of archived data. The research strategy chosen is most often decided on three things: a) the type of research question; b) the control an investigator has over actual behavioural events; and, c) the focus on contemporary as opposed to historical phenomena (Yin, 2002, p. 1). Case study strategies are typically selected...

...when “how” or “why” questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real-life context (Yin, 2002, p. 1).

The research questions for this study contained “how” questions, but also asked “what” questions. Yin (2002) points out that “what” questions can either be exploratory or about prevalence. In the case of this contemporary phenomena (i.e. the SEEDs module), the investigator had little control over the events and asked exploratory “what” questions in order to investigate the experiences of students in the pilot year of the SEEDs module in 2011. A mixed-methods approach was taken with this case-study strategy of the SEEDs module.

Although quantitative methods have long been favoured in research practices due to their assumed objectiveness, qualitative methods in education have been used to help answer broad educational questions that are not able to be converted into mathematical equations (Shulman, 1997). Quantitative research is rooted in the philosophical foundations of positivist research, whereby positivism is an epistemological belief “that physical and social reality is independent of those who observe it, and that observations of this reality, if unbiased, constitute scientific knowledge” (Gall, Gall & Borg, 2007, p. 16). Qualitative research is best defined as:

*...multifaceted in its focus, involving interpretative, naturalistic approach to its subject matter. This means that qualitative researchers study things in their natural settings, attempting to make sense of, interpret, phenomena in terms of the meanings people bring to them. (Denzin & Lincoln, 2011, p. 2).*

Mixed methods research, such as applied in this study, uses both qualitative and quantitative research methods and is based on the view that the two approaches can be complementary.

*A review of quantitative studies about a particular phenomena combined with a review of qualitative studies about the same phenomena can provide richer insights and raise more interesting questions for future research than if only one set of studies is considered (Gall et al., 2007, p. 32).*

Learning environment research (LER) in particular has encouraged mixed methods research as it enhances the study by using multiple theoretical frames in addition to illuminating the experiences of the participants to yield rich quantitative and qualitative data.

*Researchers are encouraged to learn from a rich history of research on science learning environments and employ constructs and techniques that make sense in the extant circumstances. At the same time, we encourage the application of theoretical frames, and approaches from other areas of study in the social sciences to illuminate learning environments in new ways. We cannot envision why learning environment researchers would opt for either qualitative or quantitative data, and we advocate the use of both in an effort to obtain credible and authentic outcomes (Tobin & Fraser, 1998, p. 639).*

Following this LER approach, I have aimed to triangulate the data in order to ensure the reliability of the final results. Triangulation is “the use of multiple data-collection methods, data sources, analysts, or theories as corroborative evidence for the validity of qualitative research findings” (Gall et al, 2007, p. 657). The multiple data-collection methods and the chapters that correspond to reporting them are found on Table 3. I will speak to these more later in this chapter.

Therefore, as a researcher I have made every attempt to limit my biases and assumptions in order to increase the validity and reliability of the findings, and to be

faithful to the actual events and personalities involved. A review of the research questions, and the data analyzed are found in Table 4.

**Table 3. Chapters Associated with Research Tool Reported.**

| Research Tool                               | Chapter Reported           |
|---|----------------------------|
| PLACES                                      | Chapter 8 and 10           |
| Participant Observation                     | Chapter 4, 5, 6, 7 and 10  |
| SEEDs Course Assignments and Module Reports | Chapter 4, 5, 6, 7, and 10 |
| Final Student Evaluations by the FAs and SA | Chapter 9 and 10           |
| Interview Matrix                            | Chapter 8 and 10           |

### **Data Sources**

This study involved 32 pre-service teachers who were registered in the SEEDs Module of the SFU Faculty of Education Professional Program in the 2011 calendar year. These participants were recruited in person with the full support of the FAs and FC of SEEDs, and the SFU PDP Director. In January 2011, at the start of the SEEDs module I introduced myself to the cohort as their instructor for EDUC 452 Environmental Education (Haida Gwaii) and I informed them of my intention to document the pilot year of the SEEDs module. All participants will be asked if they would like to participate in this study to investigate the learning environment of this module, and explained that their participation is completely voluntary. All participants were explained that their choice to participate or not will in no way affect their grade in the course or in PDP. In addition, confidentiality and anonymity was assured for all participants. Not only were there no declines of participation from the 32 students, the teacher candidates commented later in their reflections how fortunate they were to be a part of this study.

At the start of Education 401/2 a survey was administered to the 32 students to collect demographic data (Appendix A). The average age of the 32 pre-service teachers was 26, with a Mode of 23 years and a Range of 22-41 years of age. The Gender count

was 25 females and 7 males, which can be regarded as quite normal for a teacher education program. The average age of the 25 female students was 25 with a range of 22-35 and a mode of 23. The average age of the 7 men was 29 with a range of 22-41 and a mode of 26.

**Table 4. Research Questions and the Data Analyzed.**

| Research Questions  | Data Analyzed   |
|---|---|
| What type of learning environments do pre-service teachers who apply to an environmental education-themed module prefer?  | PLACES<br>SEEDs Course Assignments and Module Reports<br>Participant Observation<br>Interview Matrix<br>Final Student Evaluations by the FAs and SA |
| How do students perceive the actual learning environment of the SEEDs module? What were the students' perceptions of the learning environment of the SEEDs module as they experienced it?   | PLACES<br>SEEDs Course Assignments and Module Reports<br>Participant Observation<br>Interview Matrix<br>Final Student Evaluations by the FAs and SA |
| What are students' most memorable (i.e. transformational) experiences in the SEEDs module?  | SEEDs Course Assignments and Module Reports<br>Participant Observation<br>Interview Matrix  |
| Do students' conceptions/ understanding of environmental education change from beginning to end of the SEEDs module?  | PLACES<br>SEEDs Course Assignments and Module Reports<br>Participant Observation<br>Interview Matrix<br>Final Student Evaluations by the FAs and SA |
| What does practical inquiry tell us about the skills valued by pre-service teachers in an EE module?  | SEEDs Course Assignments and Module Reports<br>Participant Observation<br>Interview Matrix<br>Final Student Evaluations by the FAs and SA           |
| What factors encourage/discourage pre-service teachers to engage in EE during their practicum? What themes of environmental education can be described in the emerging practices of pre-service teachers participating in an EE module? | SEEDs Course Assignments and Module Reports<br>Participant Observation<br>Interview Matrix<br>Final Student Evaluations by the FAs and SA           |

Twenty-three of the 32 students had a Bachelor of Arts degree prior to entering PDP; 2 students had completed a Bachelor of Science degree; 1 had a Bachelor of Fine Arts, 1 had completed a Bachelor of General Studies; 1 Business Administration; 1

Bachelors of Physical Education and Coaching; and 3 Associate Degrees (Table 5). When asked to list the focus of their studies, English (7) was the most listed, followed by History (5), Geography (4), Psychology (4) Anthropology/Sociology (3), and Political Science/International Studies (3) (Table 6). Of the 32 students, 20 wanted to be elementary teachers, and 12 wanted to be secondary teachers (Table 7).

**Table 5. Bachelor Degrees of SEEDs Teacher Candidates.**

| Bachelors Degree                | Number of SEEDs teacher candidates |
|---------------------------------|------------------------------------|
| Arts                            | 23                                 |
| Science                         | 2                                  |
| Fine Arts                       | 1                                  |
| General Studies                 | 1                                  |
| Business Administration         | 1                                  |
| Physical Education and Coaching | 1                                  |
| Associate Degree                | 3                                  |

**Table 6. Bachelor of Arts Majors of SEEDs Teacher Candidates.**

| Major of Degree (Bachelor or Associate) | Number of SEEDs teacher candidates |
|---|------------------------------------|
| English                                 | 7                                  |
| History                                 | 5                                  |
| Geography                               | 4                                  |
| Psychology                              | 4                                  |
| Anthropology/Sociology                  | 3                                  |
| Political Science/International Studies | 3                                  |

**Table 7. Elementary and Secondary Teacher Candidates in the SEEDs Module**

| Grade Level | Number of SEEDs teacher candidates |
|-------------|------------------------------------|
| Elementary  | 20                                 |
| Secondary   | 12                                 |

### **Quantitative Data**

The Place-based and Constructivist Environmental Survey (PLACES) (Zandvliet, 2012) was created through a merger of the most salient scales for environmental educators in British Columbia (Canada) from previously established learning environment inventories (refer to Chapter 2) as selected by focus groups of BC K-12 educators across the province. An interesting story needs to be told here about the development of PLACES. The process that was involved with the development of PLACES coincided with the development of the Environmental Learning and Experience curriculum guides (BC Ministry of Education, 2007). In fact, they occurred simultaneously. The lead academic researcher who was involved with the ELE development had recognized an opportunity of having environmental educators from across the province of British Columbia gathering together to collaborate on the ELE development project. This collaborative approach to developing both the PLACES and the ELE framework (BC Ministry of Education, 2007) had agreed with Shapiro, Richards, Ross and Kendall-Knitter (1999) of valuing “intellectual relationships, the value of collaboration, and the importance of developing new ways to give voice to teachers to allow them to articulate their views about what is most meaningful and significant in the organization of learning environments” (p. 1). The development of PLACES took a total of 16 months and followed a participatory research model (see Coghlan & Brannick, 2001). There were two phases in the creation of PLACES.

The first stage was a small pilot study conducted by the researcher with a few in-service teachers. Here four previously published and established learning environment inventories (aka questionnaires) were chosen to select learning environment scales that could be considered elements of EE learning environments. A total of seven scales were

selected by the researcher and a few in-service teachers from this initial sample of learning environment inventories.

After piloting this composite questionnaire in a field based and classroom based learning environments “these initial case studies of actual and preferred perceptions of the learning environment in place-based, environmental education programs revealed that unique and productive attributes of these learning environments were in need of further study” (Zandvliet, 2012, p.131). This led to the decision to develop a more robust instrument to evaluate place-based environmental settings.

In the second phase a pronounced participatory research approach was undertaken with the BC environmental educators who were also coming together to work on the ELE guides. A critical document analysis was performed on EE frameworks from Canada and around the world, in addition to learning environment literature and a number of validated learning environment inventories (Aldridge et al., 1999; Aldridge et al., 2006; Fisher & Fraser, 1981; Fraser et al., 1995; Henderson et al., 1998; Henderson & Reid, 2000; Orion et al., 1997; Taylor et al., 1997;) This process took a total of 6 months with 6 such working meetings occurring across the province. From a series of focus groups at these meetings, consensus was reached on eight scales “that were deemed important to place-based and environmental educators in relation to the participants’ own practice” (Zandvliet, 2012, p. 131). Follow-ups for more input and feedback occurred for another 10 months via email, telephone and face-face conversations while wording was refined for use with each of the eight scales in this new questionnaire, PLACES.

The final version, and the one used in this study, has 5 statements (items) per scale, totalling 40 statements for the 8 scales. This learning environment questionnaire was developed into both a preferred LE and actual LE versions. Having two such versions for a questionnaire is also common practice in LER. Preferred-PLACES has the students respond to 40 statements, related to the 8 scales, to identify what their preferred psychosocial learning environment is in relation to those 8 scales (Appendix B). The Actual-PLACES identifies the students’ perceptions of an actual psychosocial learning environment of which they had just been involved in a course in relation to those 8 scales (Appendix C). The differences between the statements in each version

are slight, with the preferred being in the future conditional while the actual is written in the present tense. As an example, the fourth statement in the Preferred-PLACES instrument is : *“I want to learn interesting things about the environment outside of school”*; the fourth statement in the Actual-PLACES that students are asked to reflect on is: *‘I learn interesting things about the environment outside of school’*. When students are administered PLACES they are asked to respond to each of the 40 statements along a Likert five-point frequency response scale ranging from Almost Always (5), to Sometimes (3), to Almost Never (1) following common practice in learning environment inventories. Both of these versions of PLACES have value together and on their own. The Preferred-PLACES can be used as a diagnostic tool at the beginning of a teacher’s course to understand the expectations from their students. The Actual-PLACES can act as an evaluation tool at the end of the teacher’s course to see if the learning environment as perceived by the students matched with their preferred learning environment. As mentioned earlier, the lower the gap between actual and preferred learning environments in a classroom/course, the greater the student learning in said environment (Fraser, 2012). This questionnaire has been validated and tested for reliability (Zandvliet, 2012). Data on Cronbach’s Alpha (CA) and Discriminatory Validity (DV) from Zandvliet’s (2012) work with PLACES has been provided in Table 8 to show this.

**Table 8. Scale Mean, Internal Consistency (Cronbach Alpha) & Discriminant validity for the PLACES Instrument (N=160)**

| Scale                     | Mean | CA   | DV   |
|---------------------------|------|------|------|
| Relevance/Integration     | 4.29 | 0.78 | 0.22 |
| Critical Voice            | 4.52 | 0.76 | 0.15 |
| Student Negotiation       | 4.27 | 0.71 | 0.25 |
| Group Cohesiveness        | 4.47 | 0.81 | 0.27 |
| Student Involvement       | 3.96 | 0.75 | 0.35 |
| Shared Control            | 3.67 | 0.82 | 0.30 |
| Open-Endedness            | 4.31 | 0.76 | 0.32 |
| Environmental Interaction | 4.22 | 0.79 | 0.37 |

Note: Adapted from Development and Validation of the Place-Based Learning and Constructivist Environment Survey (PLACES), D. B. Zandvliet, 2012, *Learning Environment Research*, 5, 125-140. Copyright 2013 by D B. Zandvliet. Adapted with permission.

In a number of learning environment inventories Cronbach's Alpha is used to measure the internal consistency of each scale. In the instance of PLACES, it would be measuring how close each one of the five statements in a scale are being ranked. The closer the CA value is to 1.0 the better the internal consistency, which is the aim (Santos, 1999). Anything less than a 0.6 is regarded as having poor internal consistency. As you can see in Table 8, all the PLACES scales have good internal consistency. While the CA measures internal reliability, DV measures the validity amongst scales. In the case of PLACES, it tests to see that each scale is in fact measuring something separate than the other 7 scales. To determine this, the mean correlation of one scale with the other 7 scales is calculated. Here the closer the value is to 0.0 the more positive it is that the scale is in fact measuring something different, and anything above 0.4 is regarded as having poor validity (Revelle & Zinbarg, 2009). Looking at Table 8 we see that all eight scales score less than 0.4 and therefore are measuring different, although somewhat overlapping, aspects of the learning environment.

The eight scales of PLACES were at the core of the SEEDs module curriculum. So much so that PLACES was administered to the students 5 times throughout the program (Table 9). In Education 401/2 they were administered the Preferred-PLACES the second week of the semester, and then administered the Actual-PLACES the last week of the semester. In Education 404/452 they were administered the Preferred-PLACES the first day of the Education 452 course, and then administered the Actual-PLACES one the last day of the course. In Education 405 they were administered the Preferred-PLACES on the last week of the program in order to investigate if their preferred learning environment changed over the course of the program and after their long practicum experience. Students were not administered the Actual-PLACES in Education 405 because the students were in different schools for 11 of the 13 weeks of this last course/semester in their program, and therefore had not shared the same actual learning environment.

**Table 9. Administration of the PLACES During the SEEDs Module.**

| <b>Preferred-PLACES</b>                  | <b>Actual-PLACES</b>                  |
|--|---------------------------------------|
| Start of Education 401/2 (Early January) | End of Education 401/2 (End of March) |
| Start of EDUC 452 (Early August)         | End of EDUC 452 (End of August)       |
| End of Education 405 (Early December)    | Not administered.                     |

While the inclusion of PLACES allows for a quantitative analysis of preferred and actual learning environments, qualitative methods were also used in collecting data in order to triangulate the data collected using all research approaches. The results of PLACES were corroborated with the data analyzed via qualitative methods. For example, in the result of the Preferred-PLACES at the start of the SEEDs module the teacher candidates ranked group cohesiveness as one of the highest of the eight scales. This was corroborated with a teacher candidate stating “This group valued group cohesion”.

### ***Qualitative Data***

#### **SEEDs Program and Course Assignments**

Prior to the course 50 candidates to SFU’s PDP submitted letters of intent (LOI) to apply to the SEEDs module. See Appendix D for the communication that was sent by email to the PDP candidates. These letters were reviewed to provide information on why these individuals wanted to participate in this EE module (Table 10). Let us be reminded that the 32 SEEDs students were a part of those 50 students who applied.

The 32 SEEDs pre-service teachers were required to complete a number of assignments during the three semesters of their PDP. The course assignments that were selected by this study to investigate the students’ experiences in the SEEDs module are listed in Table 10. These assignments were selected by the investigator on the basis they could provide the richest data to look for emergent themes; unique phenomena; and complimentary or conflicting data with quantitative data collected from PLACES.

**Table 10. Assignments Analyzed Before and During the SEEDs Module**

| Semester/Course                          | Semester/Course assignment analyzed (# of assignments)  |
|--|---|
| Admission to SEEDs                       | Letters of Intent   |
| Education 401/2                          | Demographic and Additional Details Questionnaire<br>Reflection Assignments (6)<br>Credo Assignment<br>Teacher Inquiry Question            |
| Education 404 (EDUC 452 – EE Haida Gwai) | Reflection Assignments (2)  |
| Education 405                            | Reflection Assignments (5)<br>Credo Assignment<br>Teacher Inquiry Question<br>Faculty and School Associate Assessment of Student Teachers |

Students were required to submit bi-weekly reflections on their synthesis of thoughts during their experiences in Education 401/2 and 405. The questions that were given to the teacher candidates to prompt them were decided on by the FAs and focused on the recent experiences that the students had gone through that week on campus or in the school. The reflection questions asked of the SEEDs students during Education 401/2, and an initial reflection on a the reading of an article titled “Making the Transition from Student to Teacher”, were:

- Making the Transition from Student to Teacher: *What do the terms control and authority mean to you? How would you describe a well-ordered classroom? How will you establish a well ordered-classroom? How will you maintain order? What role will your students have in managing the classroom and maintaining order?*
- Reflection 1: *What are your experiences to date in the PDP program, the SEEDs module, and with theory of experiential education?*
- Reflection 2: *Talk about theory-practice connections with regards to lesson and unit planning; what were your experiences teaching in pairs and in groups? And what expectations and anticipations do you have during the short practicum placement?*
- Reflection 3: *What were the most interesting/exciting/fulfilling learning experiences for you? Why? What were the least interesting or most challenging learning experiences for you? Why? What experience(s) surprised*

*you, or led you to feel inspired or was beyond your wildest expectations? Why? What will you do with all you've learned over these past two weeks?*

- Reflection 4: Speak to your experiences with the unit planning process; diversity in the classroom; likes and dislikes; and what needs would you like your FAs to address for you as a learner in our remaining weeks of 401/2?
- Reflection 5: Write about the second half of short practicum; the practicum observation process by their SA and FA, and what they might have learned; and identifying what are your strengths and what needs to be developed for your 405 long practicum.
- Reflection 6: Speak to your individual successes; challenges and growth; how has the SEEDs module contributed to you becoming a teacher; and how will you prepare for 404 and 405 semesters?

The reflection questions during Education 405 were:

- Reflection 1: What experiences from 404 will carry into 405? What successes and anxieties do you envision happening during practicum around relationship and community building? With your credo in mind, how will you handle a defiant student with respect? How will you manage violence with peace and composure?
- Reflection 2: Does the inquiry question you developed in 401/404 still engage you? What has been surprising, disappointing and expected during the first stage of your practicum; How is the current threat of a provincial job strike affecting your practicum experience?
- Reflection 3: What are your experiences to date in your practicum? What are your thoughts on the midterm evaluation? Make a list of things that you would like to learn from your SA or FA.
- Reflection 4: How has the midterm process helped you grow in your teaching practice?
- Reflection 5: Reflect on any experiential learning adventures you have facilitated in your classroom, and the challenges associated with them; How successful were you in integrating environmental education in your classroom? What were your expectations of PDP prior to your first day? Were they met?

In EDUC 452 Environmental Education they were not required to submit reflections but were asked to volunteer to answer reflection questions at the start of EDUC 452 and at the end. These questions were developed by me in order to investigate linkages between Education 401/4 - Education 404/452, and Education 404/452 – Education 405. The questions at the start of EDUC 452 were: *Did 401/402 prepare you for 404? Why or Why Not? In terms of environmental learning you were exposed to in 401/402, how much stayed with you in 404? and what*

*expectations do you have for this Haida Gwaii EDUC 452 course? The questions asked of the teacher candidates at the end of EDUC 452 were: Do you see any connections with what you had experienced in EDUC 452 Haida Gwaii and what was to come in your practicum in EDUC 405? Were your expectations met for this course?*

A teaching credo assignment was also one that was assigned in both Education 401/2 and 405. This assignment had the students develop a list of principles that were to represent their current beliefs of teaching. There were four credo assignments in total throughout the program (3 in 401/2; 1 in 405). The first credo assignment in Education 401/2 was reviewed, as was the last one, which was their final credo during Education 405. This was done with the intention of comparing the two and identifying the disparity between them, thus, identifying the change that occurred over the course of the 12 months of this program.

A teacher inquiry assignment was also required of the SEEDs cohort. In an effort to encourage the development of a reflective practitioner, the teacher candidates were introduced and exposed to investigative research by in-service teachers in their classrooms. In Education 401/2 they were to develop a question, and in Education 405 they were to finalize the question and investigate the topic of their research. The inquiry questions were reviewed to see if there were any changes in the focus of their question from the start of the module to after experiencing the first few weeks of their long practicum.

Purposeful sampling was chosen as a sampling method for the assignments analyzed during the SEEDs/PDP. This sampling technique selects specific cases from a sample that the researcher believes is “*information-rich* with respect to the purposes of the study” (Gall et al., 2007). The objective with purposeful sampling is not selecting a sample that will accurately represent a defined population but rather to provide “an in-depth understanding of selected individuals” (Gall et al., 2007). I chose to use purposeful sampling to select 6 specific individuals to focus on when analyzing student assignments in Education 401/2 and 405 so that I might be able to provide a deeper understanding of their experiences in the SEEDs module and find themes that may be present in each of their experiences. The six people are given aliases in this report, and were selected based on their background entering into the module, as two students came from the fine

arts, two from the sciences, and two from the arts; and their age was along the range for the SEEDs module (22-41 years old). The four of the six teachers were focused on being secondary teachers, and two aimed to be elementary. Three of them had strong links to EE and three did not. By using purposeful sampling it was possible to tell a more interesting story of the students' experiences by being able to follow the 6 students during Education 401/2 and Education 405. Due to the different format of EDUC 452 Environmental Education (Haida Gwaii) from Education 401/2 and 405, I chose not to sample just the 6 student as I had in Education 401/2 and would do in Education 405 in order to provide more data to analyze as the reflection assignments that the teacher candidates volunteered to respond was the only tool that provided insight to the their experiences during this course, besides those recorded by me in my participant-observer role. Lastly, during Education 401/2 and Education 405 semesters, when appropriate I have added the random comment from other SEEDs teacher candidates when believed important.

The SEEDs program and course assignments that were collected from the students were analyzed with the intention of looking for emergent themes; unique phenomena; and complimentary or conflicting data with quantitative data collected from PLACES. Coding was the most utilized approach in doing this qualitative analysis. A code "is most often a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data" (Saldana, 2012, p. 3). Arguably all data can be coded, such as participant-observer field notes, journals, interview transcripts, websites, and emails.

In the analysis of the student assignments in this study, a traditional coding approach was taken. Traditional coding protocol has a researcher conduct a number of cycles of coding their data. Each cycle of coding refines the "salient features of the qualitative data record for generating categories, themes, and concepts, grasping meaning, and/or building theory" (Saldana, 2012, p. 8).

Taking this in mind, the LOIs and assignments from students were coded looking for patterns, such as those listed by Hatch (2002. P.155):

- Similarity (things happen the same way)

- Difference (they happen in predictably different ways)
- Frequency (they happen often or seldom)
- Sequence (they happen in certain order)
- Correspondence (they happen in relation to other activities or events)
- Causation (one appears to cause another)

A number of cycles of coding occurred after the first reading of each assignment and LOI. The analysis of the student assignments and LOIs occurred after the end of the pilot year of SEEDs.

### **SEEDS 2010/2011 Module Report**

All Faculty Associates (FAs), Faculty Sponsors and Faculty Coordinators were responsible to compile a yearly fiscal report that due April of every year. This report provided details on the program over the past year and was typically led by the FAs. The SEEDs FAs submitted a report in April 2011 that provided a description from the FAs from early SEEDs experiences from January – April 2011 as well as their interpretations of what the SEEDs students experienced. This document was analyzed looking for emergent themes; unique phenomena; and, complimentary or conflicting data with quantitative data collected from PLACES and my own participant observations. Patterns, as those described by Hatch (2002) were also looked for. Due to administrative changes in 2012, a report was not put out.

### **Faculty and School Associate Assessments of Student Teachers**

For each pre-service teacher, the SA and FA responsible for that teacher had to submit a final evaluation of the student teacher's practicum. The purposive sample of the 6 students was practiced here. Unfortunately, I was only able to access 5 of the 6 Final Evaluations.

The evaluation form is divided into three parts: The Student Teacher as a Growing Professional; The Student Teacher and the Pupils; and lastly, The Student Teacher and the Curriculum. The evaluation form inherently represented the goals of PDP and that of SEEDs (Appendix E and F). A positive evaluation by an SA and FA led to the pre-service teacher to be awarded their BC Teachers' Certificate, allowing them to teach in this province.

The Student Teacher as a Growing Professional had the evaluators focus on the individual and how well they have made the transition from student to teacher. The evaluators were specifically asked to provide evidence/commentary on the pre-service teachers demonstrating:

- Thoughtful, self-initiating, rational, responsible behaviour that is reflective, positive in outlook, genuine, nondefensive, non-judgmental.
- A clear, coherent, well-thought out philosophy that is inclusive of all learners, places students at the centre of decision making; upholds ideals of inquiry, collaboration, integrity and caring.
- A commitment to lifelong learning; ethical and professional working relationships with all members of the educational and wider community; an openness to possibilities and alternatives.

The Student Teacher and the Pupils has the SA and FA speak to the pre-service teachers' conduct in the classroom, and in particular how they interacted with their students, in addition to those with different learning styles and needs. The evaluators were asked to provide details on how the students demonstrated:

- Respect for students with varied backgrounds, interests, points of view, goals and aspirations; respect for the dignity of each learner
- Recognition for and responsiveness to individual learning needs
- Understanding of how individuals and groups of students learn
- Behaviour that prizes students: that is free from attempts to dominate them
- Behaviour that is free from bias; that communicates sensitivity to students
- Behaviour that is real, genuine, authentic
- Skill in organizing harmonious working groups in which students are actively involved in learning and purposeful inquiry
- Interactions that show caring and respect; encourage learners to clarify and examine ideas; are unpretentious and honest; that communicate openness and tolerance for uncertainty
- Ability to observe, understand and respond appropriately and respectfully to students with learning and behavioural difficulties
- Ability to attend and hear students; to be non-judgmental in responding

Lastly, The Student Teacher and the Curriculum seeks to understand how well the pre-service teachers developed engaging, interactive curriculum materials and how

well they knew their subject matter. Specifically, the FA and SA were asked to show how the student teachers demonstrated:

- Ability to develop curriculum materials that: are appropriate to educational goals; are lively and imaginative; reflect principles of learning; promote thinking; are relevant to students; are intellectually challenging; are sensitive to issues of social equity and cultural diversity; are varied and imaginative; engage students in "minds-on" and "hands-on" ways; address the "big ideas" rather than trivialities
- Ability to put educationally sound curriculum ideas into practice in well-organized ways
- Ability to develop and use evaluative materials and methods as a means of furthering student learning; make use of varied evaluative practices that are congruent with learning goals, that respect the dignity of learners, that promote self-assessment and self-evaluation
- Ability to be flexible about curriculum -to recreate, reinvent and discard practices that are inappropriate to individual and group learning needs
- Knowledge of subject level material and ability to communicate knowledge clearly to students

These documents were analyzed looking for emergent themes; unique phenomena; and complimentary or conflicting data with quantitative data collected from PLACES. Patterns, as those described by Hatch (2002) were also looked for.

### **Participant Observation**

My roles in the SEEDs module were those of researcher, facilitator and instructor. From the beginning of SEEDs in January 2011 I was involved in the program. I got to know all the students personally, through informal conversations and also through formal interactions as their instructor, and through the research process. These roles gave me an opportunity to document the implementation of the SEEDs module both from my own observations but also from the experiences of the students. This research approach is known as participant-observation, whereby I am both a participant in the phenomena being studied but I am also acting as a researcher and therefore observing (Gall et al, 2007). I recorded my observations much like a journal, recording details observed in a word document for each semester of the SEEDs module: Education 401/2; Education 404/452; and Education 405. These notes were analyzed looking for emergent themes; unique phenomena; and complimentary or conflicting data with quantitative data

collected from PLACES. Patterns, as those described by Hatch (2002) were also looked for. These journal notes provided the foundation and the framework for the Chapters 4, 5, 6 and 7.

### **SEEDs Interview Matrix**

During the last week of the SEEDs module and PDP, the pre-service teachers were asked to take part in an exercise to evaluate the SEEDs program through their experiences. The model used for this evaluation follows that of the Interview Matrix. This tool used often in management dialogues and focus group work is particularly powerful because of the way it gets...

...the whole group engaged in dialogue with equal airtime, focus and consensus building as the main elements. It quickly brings a working group to consensus without everyone making mini-speeches at each other. It is particularly effective in preventing anyone from monopolizing the available airtime. This is primarily a small group tool (minimum 12-maximum 60). The outputs include dialogue from all participants, lively group dynamics, simplified consensus building and focused problem solving. It is used for the most part in focus group work, workouts and management dialogues. (Government of Canada, n.d.)

With the research questions in mind, the FAs, Faculty Coordinators, FS and other partners involved in the educational programming of the SEEDs module collaboratively developed four questions for the matrix interview process. These questions were then addressed to the SEEDs module participants. Twenty-five students were present when the Interview Matrix was enacted on the last day of class. The question topics were: Transformation; Implementation; Your Perceptions; and Your Future Goals.

In Transformation, the question asked to the students was: *In your opinion, how have the experiences in PDP led to changes for you as a person and as a teacher? (Have the changes you have experienced been positive? In what ways has being a part of SEEDs module been an agent for positive changes?)*

In Implementation, the question was: *In what ways have you infused SEEDs (notably diverse approaches to sustainability education and environmental learning) into*

*your planning and practice as a teacher these past few months (i.e. in your 405 practicum)?*

In *Your Perceptions*, this section asked the SEEDs students: *Have your perceptions changed over the past 12 months with regards to your understanding of sustainability education and environmental learning? (On the basis of what evidence or experiences do you base your view?)*

Lastly, in *Your Future Goals* the fourth question in the Interview Matrix, asked: *What are your highest priority personal and professional goal(s) at this time? How have these goals been shaped by your experiences in the SEEDs module?.*

The Interview Matrix begins and ends as follows. With the four sections and their associated sub question(s) set prior to the class, the pre-service teachers are numbered 1-4. In *Part A: The Journalist Interviews*, with four groups now selected, each group is then given their corresponding questions which are also numbered 1-4 and a form to go along with that. Individuals are then required to answer their corresponding question in the form given to them. Next, a series of 6 interviews/being interviewed occur in the set sequence of (1-2, 3-4) (2-3, 4-1) (2-4, 3-1) (3-2, 1-4) (4-2, 1-3) (2-1, 4-3), only recording information when the individual is in the interviewer role.

In *Part B: The Editorial*, each group stations themselves at a flipchart with their corresponding question number group, and compare the notes they have taken while interviewing others about the same question, and the notes they had written as their own answers to their question. The groups are then asked to identify possible themes in the answers in addition to bringing to light unique ones, and then recording them on the flipchart. Once they had done that each group was asked to post their page on a wall along with those of the other groups to set up the next part.

In *Part C: The Paper Route*, each group was asked to stand by the spot on the wall where the page of answers to their question was posted. They were then directed to move clockwise to the next group's page. There each group was asked to read over the other themes and unique comments from the other questions in silent, adding anything they believe had not been noted or should be highlighted. They were required to do this for each question in turn. The last stage, *Part D*, asked the students to hand in their

corresponding question forms to me for my own analysis. The answer forms are anonymous.

## **General Summary**

This case study of the SEEDs module used a mixed methods approach, quantitative and qualitative; to gather data in the hope of answering the exploratory research questions on the SEEDs student experiences in the pilot year of this module in 2011. A quantitative learning environment survey called the Place-based and Constructivist Environmental Survey was administered to the SEEDs students was used to collect data on the students' preferred and actual learning environments. Course assignments, such as reflections, credos, teacher inquiry questions, SEEDs 2010/11 Module Report, FA and SA assessments of the student teachers and the Interview Matrix, were analyzed using coding practices looking for emergent themes; unique phenomena; and, complimentary or conflicting data with quantitative data collected from PLACES and my own participant observations.

## **Chapter 4.**

### **Admission to the Program**

Chapters 4-8 report the results of this case-study describing the implementation of a 12-month Environmental Education (EE) module of a teacher education program in the Education faculty of a Canadian public university. In the process of describing the program I hoped to address the following questions.

1. What type of learning environments do pre-service teachers who apply to an environmental education-themed module prefer?
2. How do students perceive the actual learning environment of the SEEDS module? What were the students' perceptions of the learning environment of the SEEDs module as they experienced it?
3. What are students' most memorable (i.e. transformational) experiences in the SEEDs module?
4. Do students' conceptions/ understanding of environmental education change from beginning to end of the SEEDs module?
5. What does practical inquiry tell us about the skills valued by pre-service teachers in an EE module?
6. What factors encourage/discourage pre-service teachers to engage in EE during their practicum? What themes of environmental education can be described in the emerging practices of pre-service teachers participating in an EE module?

### **SEEDs Participant Selection Process**

By early 2010 “the administrative seeds were planted to enable this transformation...[to] an ‘Environmental Education’ module” (Robertson et al, 2010/11, p.2). In July/August 2010, an email was sent out to all PDP candidates enrolled to begin in January 2011 term presenting them with the opportunity to become involved with an EE pilot module.

*Dear PDP Applicant,*

*Beginning in January 2011, a module of the Professional Development Program (PDP) will be offered in environmental education. This integrated module will provide students with all the requirements to meet certification with the BC College of Teachers while also providing a range of special environmental teaching and field experiences that MAY lead to the completion of the minor in Environmental Education as part of the Bachelor of Education as a second degree. This option is open to all applicants to PDP, including those who have not yet completed an undergraduate degree. For all applicants to this special theme -- enrolment in the Minor in Environmental Education will also be strongly encouraged.*

*The module will begin in the 401/402 Spring Semester (January) and be followed by a selection of elective courses during the summer 404 semester. Students choosing the option of the Environmental Education minor (and the August field experience requirement for this), will take elective courses during the Summer semester that do not have a scheduled exam. As part of this experience, students will register in a special 8 credit offering of Environmental Education (EDUC 452-8) which will consist of an orientation weekend plus an intensive two-week field experience scheduled to begin in early August, 2011 – tentative location Haida Gwaii. This will be followed by a final 405 Practicum experience. Throughout the year, students will be exposed to a variety of formal and informal experiences which will, upon successful completion of the PDP, lead to formal certification by the BC College of Teachers.*

*If you wish to be considered for admission into this special pilot module please email PDP Admissions of your intent and cc the Faculty sponsor.*

Fifty PDP candidates responded to this call expressing an interest in taking part in this EE-themed integrated module. Each applicant was required to email a short letter of interest detailing why they would like to be part of this module. In each of these letters there was a genuine interest in environmental learning and sustainability (Robertson et al, 2011). The majority of the applicants in making their argument to be in the program commented on their early childhood experiences in the outdoors and their lifelong connections to the environment. Those students who were offered a seat in the SEEDs module tended to show a passion to contextualize learning in their daily lives and to the world around them.

*Phillip: The environmental education program at SFU is just what I've been searching for. My first aspiration to become a teacher came in grade 10 when I attended the TREK*

*program at Prince of Wales in Vancouver. I made lifelong friends, learned about issues that seem to be far more important than the war of 1812, and gained an appreciation for BC natural surroundings. Since that experience I have oriented my education, and volunteer time towards understanding and teaching others about the importance of the environment... I truly believe in the power that the outdoors can have on kids and I hope that through The Environmental Education program at SFU I will gain the necessary practical and technical skills to give kids the opportunity to experience the power.*

*Juno: To further support my application for the environmental education module, I would like to emphasize that I have had a lifelong interest in the interactions between humankind in the world surrounding us, with special focus on James Lovelock's Gaia principle—that the entire world can be seen as a giant organism—through to David Suzuki's clear-eyed analysis of the impact our choices have on the future. On a personal level, growing up in the Okanagan with the ongoing milfoil problems, and on the West Coast BC, where I witnessed first-hand the devastation of the Coho salmon stocks through overfishing and the myriad other damaging influences prevalent before the public became aware of our role in the decline. I am fully aware that there are many other factors that would fall under the umbrella of "Environmental Education"—from First Nations culture, to alternative energy resources, to the ownership of water—and the list goes on. The passion I feel towards this subject makes the entire idea of teaching this information not just exciting, but mandatory.*

Others were quite honest that they had not had much experience in environmental education, but had a genuine interest in bringing it in to their practice, believing it would help their students have unique experiences, provide foundational knowledge on sustainability and environmental issues to become a successful teacher, and give them, as students, a valuable experiences out of the classroom during their teacher education program.

*Helvia: My main area of interest that makes me a good candidate for the Environmental Education module of PDP [i.e. SEEDs] was sparked when I became a beekeeper 4 years ago...Although my undergraduate degree never really touched directly upon the environment, or environmental politics, my childhood love and appreciation for the natural world has really been rekindled by my experiences as a beekeeper. I believe that this Environmental Education*

*module would help me teach my future students a variety of unique ways to exercise as well as help me to give them unique experiences that will help build their passion for something.*

*Carmen: This module is of interest to me because recently I have become aware of sustainability and other environmental issues in our world. A class I'm currently taking [on the environment and society] further deepened my interest in the subject matter. I believe by completing the EE module, I will be given a different viewpoint to look at the world; along with understanding of various social, political and economic issues concerning our planet. I think this will be of advantage to me in my career as a teacher.*

*Alison: On a more personal level, this module will give me a unique learning opportunity I've always wanted to do a field study but as I was married at quite a young age I was never able to do one. This module is of particular interest to my future as an educator. I believe that having a field school experience will be valuable to my learning outside of the classroom.*

## **The Final Selection**

A selection of 38 applicants was shortlisted from the initial 50 applicants, and by the fall of 2010 the module had its final cohort of 32 pre-service teachers. At the start of the SEEDs module, these 32 pre-service teachers were asked to fill out a survey that contained number of questions to provide additional information on their reasons for being in this module in addition to why they became a teacher. While this Chapter describes the development of the module (before its official start) the response to these questions are presented here for the reader to get an idea of what type of person was interested in this SEEDs module. A general theme for being involved in the SEEDs module was that it was a great opportunity to become involved in EE and sustainability.

*Helvia: Environmental education and sustainability are things that I have always had an interest in but was never able to explore because I had chosen an entirely different path for post-secondary. This seemed like a great opportunity and not something I could/should pass up.*

*Carmen: Took a class during my undergraduate on the environment and society, which interested me. Also, thought it would get me into PDP, so why not ☺*

- Juno: I was very excited to have this option. [This module] encompasses how I believe society needs to be moving towards living. As the health of the planet and human interactions with the earth and each other continues to come into question, the more that issues of sustainability, community, justice, diversity, education is/are important to address. This also needs to be and will be increasingly important in schools and our Education Systems. This is how I live.*
- Maria: It seemed interesting!*
- JP: I believe that our society is insanely consumerist and abuses our privileged position as one of the "best" countries in the world, yet we ignore the environmental cost of our actions. [This module] gives me the opportunity to spread that message to the future generations.*
- Lance: It encompasses several areas, which I am very passionate about and interested in. From environmental conservation and exploring wildlife, to sharing these passions through education, which is very important to me.*

The next question that was asked them concerned the reasons or inspirations to become a teacher. From the six sampled, previous exposure and experience in teaching had been important, in addition to having had a teacher during their schooling who had inspired them, parents who were teachers and/or a sincere interest in working with children and youth.

- Helvia: Kept getting teaching jobs and found them very enjoyable and fulfilling. I think that students enjoy having me as a teacher and I think I can make a difference in the lives of young people.*
- Carmen: Because of a teacher I had in high school for social studies, law and history. I also feel like I may be able to make a difference in a few of the students who come through my class. Able to build great relationships with them and I really enjoy working with high school students 😊*
- Juno: I have always wanted to be a teacher, sprinkled amongst of course a ballerina and rodeo rider (when I was 6). It is who I am. I am constantly teaching and learning from others. I don't know what I chose to be a teacher originally but that teaching chose me. I only decided to go with and grow that gift.*
- Maria: I enjoy teaching and helping children (within ages they are developing) physically and mentally. I want to help [children] in a positive manner, [supporting] them academically and emotionally.*

*JP: I started teaching 5 years ago in post-secondary because of my speciality in screen writing and producing. I came to PDP because I loved the teaching I was doing and wanted to widen my opportunities as an educator.*

*Lance: It was always an enticing occupation for me, and having a parent in the profession allowed me to see the benefits and rewards. As I moved into post-secondary, I began to realize that was in fact where I wanted to be.*

An interesting observation here was when they were asked their reasons for becoming a teacher, these teacher candidates did not outwardly state they were doing it for the environment, or to help shift our society to be more sustainable, their reasons were always personal.

The last question that was asked of the group was if they had a background in the environment, or in environmental issues. A majority of those sampled spoke of a course or courses during post-secondary. A few spoke of their parents having influenced their opinions on the environment, and one stated she had not had any previous experience.

*Helvia: No, besides working as a beekeeper and teaching kids how bees are instrumental in sustainability.*

*Carmen: From an undergraduate sociology environment class at SFU...environment and society with Hannah Wittman [which] dealt with a lot environmental issues that are of interest to me!*

*Juno: My degree is in the Environment/Geography. My parents were always involved in these issues so I am used to the idea....I am involved, care and pay attention to local issues....I interact with and have interest in the neighbourhood, school, culture, etc.*

*Maria: None.*

*JP: I believe we are in constant "experience" with our environment. I have been engaged in a being a "part" of the environment in many ways (fishing, hiking, etc.) but not as a protestor or an activist.*

*Lance: Yes, [I] worked for 3 years for the Nature Trust of BC[; I did a] Biology Minor with many environmentally focused courses [; and my] mom has an Environmental Studies degree in Urban Planning*

Interestingly, three other SEEDs pre-service teachers, who were not of one of the 6 purposively sampled, had taken a similar program during their K-12 student experience and were now hoping to replicate something similar in their own classrooms.

*Phillip: My first aspiration to become a teacher came in Grade 10 when I attended the TREK program at Prince of Wales in Vancouver. I made lifelong friends, learned about issues that seemed to be far more important than the War of 1812, and gained an appreciation for BC natural surroundings.*

*Brian: As a student, I attended North Vancouver District's Outdoor School in Squamish, where I benefited from a unique education environment and discovered that learning extended beyond the classroom and traditional teaching methods. This experience established enthusiasm for outdoor education as well as excitement for environmental matters and creative learning.*

*Carla: One of the highlights from my high school education was a program I participated in called Experiential Studies...I would like to teach a similar program one day and this new module sounds like a great opportunity to gain education and experience.*

In December 2010, one month before the SEEDs module began, an orientation meeting was organized by the FAs and FS with the SEEDs teacher candidates. Although this meeting was not a mandatory meeting, “[o]ver half of the 2011 module attended and it was clear immediately that this group of learners was bringing keener focus, more extensive life experiences [from previous GC modules] and a strong sense of community to our work” (Robertson et al., 2011).

## **General Summary**

After the initial call for applications to the SEEDs program, fifty PDP candidates sent in letters of interest. Thirty-two students were selected from this pool of fifty applicants. These students tended to comment on their early childhood experiences in the outdoors and their lifelong connections to the environment. One interesting discovery is that three of the thirty-two students had been in a similar program during their K-12 student experience, and they were hoping to replicate this experience for their future students.

## Chapter 5.

### First Semester of SEEDs

The start of the SEEDs module began January 9<sup>th</sup>, 2011 with the students enrolled in *Education 401/402: Integration of Theory and Practice*. As described in the SEEDs Handbook (Murray, Metcalfe & Leddy, 2012):

*The first semester of the Professional Development Program is Education 401/ 402, wherein you engage in the study of teaching through the integration of school-based explorations, classroom practicum experiences and seminars about teaching and learning. This integrated experience creates opportunities for you to grow in your understanding of the relationship between educational theory and classroom practice.*

*One particular focus of the SEEDs Module is the role of ecological awareness and learning environments in shaping pedagogy. You will be encouraged to explore theories and practical approaches that embed sensitivity to our environment and meaningfully engage the diverse nature of the students in your care.*

The first week had the pre-service teachers being introduced to PDP and the expectations that would be thrust upon them. This semester would last 13 weeks and would have the pre-service teachers spend 5 of those weeks in schools, 1 week collaborating with a school district and running a spring break camp for K-5 students, and 7 weeks of on-campus workshops on curriculum theory and practice, along with off-campus field trips and community development activities (Table 11). The beginning of the program focused first on the transition of the student to a teacher.

**Table 11. Schedule of Education 401/2 (January-April 2011).**

| Week          | Monday  | Tuesday                          | Wednesday                                    | Thursday | Friday                                    |
|---------------|---|----------------------------------|--|----------|---|
| 1<br>January  | 10<br>• Start of SEEDs                            | 11                               | 12<br>• - Transition from Student to Teacher | 13       | 14  |
| 2             | 17<br>• Intro to teacher inquiry                  | 18<br>• Retreat NVOS             | 19<br>• Retreat NVOS                         | 20       | 21<br>• First Credo<br>• PLACES preferred |
| 3             | 24<br>• Reflection 1                              | 25                               | 26   | 27       | 28  |
| 4<br>February | 31  | 1                                | 2  | 3        | 4   |
| 5             | 7<br>• In Schools<br>• Reflection 2               | 8<br>➡                           | 9<br>➡                                       | 10<br>➡  | ➡ 11                                      |
| 6             | ➡ 14  | ➡ 15                             | ➡ 16   | ➡ 17     | 18<br>• End in Schools                    |
| 7             | 21<br>• Reflection 3                              | 22                               | 23   | 24       | 25  |
| 8<br>March    | 28<br>• In Schools                                | 1<br>➡                           | 2<br>➡                                       | 3<br>➡   | 4<br>➡                                    |
| 9             | ➡ 7<br>• Reflection 4                             | ➡ 8                              | ➡ 9  | 10<br>➡  | ➡ 11                                      |
| 10            | ➡ 14  | ➡ 15                             | ➡ 16   | ➡ 17     | 18<br>• End in Schools                    |
| 11            | 21<br>• Reflection 5                              | 22<br>• School of Wonderstanding | 23<br>➡                                      | 24<br>➡  | 25<br>• End - School of Wonderstanding    |
| 12<br>April   | 28  | 29                               | 30   | 31       | 1<br>• PLACES actual                      |
| 13            | 4<br>• Reflection 6<br>• Teacher Inquiry Question | 5                                | 6  | 7        | 8   |

## The Transition from Student to Teacher

Analysis of assignments within the semester's work gave insight into the struggle as the subject participants began the transition from student to teacher. An assignment that was due two days into the program asked the participants to read *Making the Transition from Student to Teacher* by Schaller and Pickard (1992). In this article, Schaller and Pickard discuss four issues that they argue are not adequately addressed in teacher education programs: responsibility; authority; personal growth; and teaching style. Along with the reading of the article, the students were later asked to reflect on it taking into consideration a number of questions: *What do the terms control and authority mean to you? How would you describe a well-ordered classroom? How will you establish a well ordered-classroom? How will you maintain order? What role will your students have in managing the classroom and maintaining order?*

The inclusion of the reading at the start of the program was to bring attention to Schaller and Pickard's (1992) message that the transition from student to teacher "demands a commitment to develop as whole people, as teachers and learners, in the ongoing process we know as education" (p. 8). In short, the focus of this assignment was to assist the pre-service teachers with developing their own 'teaching identity'. To remind you, six students were purposively sampled to provide deep understanding of student experiences. It appeared to have resonated with one student:

*JP: I found the article enlightening in that it made me consider that we will find that good place inside ourselves wherein we teach from the soul, with growth coming from that spot over the years, but that even within that, the educator will always be subject to criticism. It is a profession in the spotlight. There will be fellow teachers, administration, parents, students, the media, all peering down into the crucible of our classroom, eyebrows raised, questions being asked, criticisms occasionally levied. And the best way to endure those moments will be in finding that happy spot wherein we know that we are giving our best, from the core of ourselves, bravely, tenaciously. With all of that, however, when the criticisms may come, we need to be prepared to hear them, contemplate what the meaning of them is, and lay our egos to one side so that we can allow it to be an opportunity to grow further as a teacher. Above all, in this spot-lit profession, one needs to develop a deep sense of*

*self-confidence, so deep in fact, that we can embrace worthy criticisms when they come.*

The questions that were being asked of the pre-service teachers to reflect and write on provided an interesting opportunity to find out how they imagined their own classroom learning environments. The first question that was asked of them was: *What do the terms control and authority mean to you?* In regards to control and authority, it would appear the elements that are viewed as essential to the preferred learning environment of these SEEDs students is one that creates a sense of comfort and safety, where mutual respect exists between student and teacher, and has the instructor in a facilitator role.

*Helvia: Perhaps the control also comes in part from each student's individual respect for the needs of their peers and instructor...I see authority as the power or ability to make the final decision on a matter. I feel students will respect your authority if you demonstrate on multiple occasions to be making decisions that are ultimately in their best interests, and if students are asked their opinion about such decisions and involved in the decision-making process.*

*Carmen: To me the words authority and control insinuate, a sense of security and belonging for the students and the teacher. It is the ability for individuals within the classroom to feel safe in the environment so that they are able to learn and express their ideas. I do not think that a teacher should take on a strict role of an instructor, but should be a mediator and facilitator within the classroom.*

*Juno: I do believe in having a comfortable safe learning environment so anarchy or total freedom is not an option but does not require control. A comfortable safe learning environment, to me requires "authority". Someone that can be looked upon as setting parameters and boundaries, and will adjust those boundaries as necessary.*

*Maria: My personal interpretation of control and authority in education is, a teacher whom is able to facilitate a classroom, and is respected by students. This is since I feel authority must be earned, and this can only occur when students respect you as an individual...I have experienced that you can teach children your best when you can develop a relationship with them, and can relate to them.*

*JP: The term "control" suggests to me mainly a sense of direction – knowing where you are starting and ending your journey....A teacher that wants to be in control has to know what control looks like, and then clearly communicate it to*

*the classroom community. "Authority" on the other hand, suggests a person or a group of persons "in charge" of setting parameters or path. Hence, an authority figure typically has knowledge, experience, and wisdom somehow bequeathed upon him or her so that they looked up to guidance and support in a respectful manner.*

*Lance: Authority and control work hand in hand where an authority utilizes control to exploit a subject. A classroom which is controlled is often unfortunately reminiscent of dictatorship where the teacher has adopted a delusion of ultimate power and authority over not just the classroom itself, but every individual student.... Although a delusion of order can be achieved through control and authority, the teacher has a false order within the classroom – one which will expire as soon as the students find a weakness among the authority to exploit.*

The following questions had the pre-service teachers explain their understanding of a well-ordered classroom: *How would you describe a well-ordered classroom? How will you establish a well ordered-classroom?* A well-ordered classroom, according to these students, is one that students feel part of a community; that exudes a sense of organization and inclusivity; and where students are involved in the process of creating the classroom learning environment, such as developing the classroom rules.

*Helvia: As mentioned previously, a well-ordered classroom is one that exudes a sense of organization, calm, and purpose. Students are aware of the needs of their peers and instructor and behave in accordance with these and their own needs....I will establish a well ordered classroom by making classroom rules a group discussion.*

*Carmen: A well-ordered classroom to me would be one where both the teacher and students are respected and treated equally....A classroom which addresses various learning styles, one that students and teachers feel comfortable in, a classroom that students are not scared to share their thoughts and feelings and one where the teacher is an inspirational role model to his or her students. Furthermore, a well-ordered classroom may insinuate a classroom that has rules and guidelines, a routine established, a classroom that is organized, and is pleasing to the senses....In achieving a "well-ordered" classroom, I would allow my students to be involved in the process as much as possible; this may involve suggesting rules of their own or voting on already set out rules.*

*Juno: A well-ordered classroom is one that is physically and mentally organized....must also be positive, safe and*

*inclusive with clearly established boundaries, expectations and responsibilities....should operate as a small community with every member having a place, and value with in that community....In the article the transition from student to teacher required the awareness and acceptance of responsibility, the development of teaching style, self confidence to have and be an authority and the ability to learn and grow from these experiences. All of these criteria I need to develop and refine in order to provide a well-ordered classroom.*

*Maria: My ideal belief of a well ordered classroom is one that is chaotic....students learn best from others, such as, through group activities, small and large group discussions.... However, as a new teacher, this method would be quite overwhelming in managing a classroom....I would attempt to establish a well-ordered classroom through a mix of activities, discussions within small group followed with sharing with the large group, and having the teacher's role as modulator/facilitator.*

*JP: A "well-ordered" classroom is one that transmits to its occupants a sense of direction in every way possible. Physically, the classroom should indicate that it is a place for learning and exploring....A well-ordered classroom grows from all members understanding that they are a member of a community and their role within that community. Therefore a variety of community-building exercises would help establish a well-ordered classroom.*

*Lance: A well-ordered classroom is one which is not controlled, but rather, one which is managed. A managed classroom is one where students are free to be themselves, yet understand that they are responsible and accountable for their actions....In order to establish order within the classroom, I must understand who I am as a person and as a teacher before I can expect any student to buy in to my vision of an ordered classroom.*

The last questions from this assignment involved the question of maintaining order in the classroom: *How will you maintain order? What role will your students have in managing the classroom and maintaining order?* With regards to maintaining order, and the students' role in this process, a learning environment that comprises respect and is respectful; has a strong community; and where students' have a voice and a defined role in helping to maintain the order. In short, maintaining order in the classroom is suggested to be a classroom community responsibility.

- Helvia: I think in both establishing and maintaining a well-ordered classroom it is important to make students understand that while you expect respect from them, you also respect and want to hear what they have to say. A student who feels respected and valued is more likely to want to reciprocate those things.*
- Carmen: Maintaining order, I think will change and depend on each class a teacher is given, each set of students are unique. However, I think I would maintain order in the classroom by gaining the respect of the students and ensuring they have the respect of each other....I think it takes time, effort and experience to become a successful teacher and to achieve a classroom with order.*
- Juno: I think that I will better maintain order when everyone knows the expectations for behaviour and consequences if expectations are not met. I think that if I model respectful behaviour then I have a better chance to expect that behaviour back. I want my students to have an appropriate ('feel big') role in the management and maintaining order. I think that if students have a voice in choosing what their learning environment will look like, they will be empowered to have an interest in themselves and each other, which they are more likely to follow and accept.*
- Maria: I would not maintain order in the conventional manner while only teaching students directly, but would encourage questions at any time while teaching. I would also allow group activities and discussions to stay on task by informally involving myself within the groups, without disrupting the group dynamics. I would also assign various leadership roles to students, i.e. one student as the note taker, one as the timekeeper, one as the head leader of the discussion, etc.*
- JP: Maintaining order will be accomplished through careful and well-articulated classroom planning and structure, such as "shape of the day"; clearly defined and focused expectations in terms of learning and behaviour; and establishing respectful interactions amongst all community members....Clearly establishing the classroom community and all the expectations that go along with being a part of that community, from the moment the student first steps into the classroom, is critical in involving the students in managing and maintaining order.*
- Lance: If I accept and appreciate the diversity of learning within [the student's] class, and provide every learner with the opportunity to learn and develop their own way, order will maintain itself as each student will feel part of the community. If it becomes necessary for me to re-establish order among student or students, I will focus on influencing appropriate behaviour through intrinsic means instead of*

*providing external rewards to “act properly”. It is quite clear from these excerpts that these pre-service teachers have come into the SEEDs module with an established non-traditional approach to teaching and learning. Several connections were noted to a number of the scales from the PLACES elements, specifically Critical Voice, Student Negotiation, Student Involvement, Shared Control and Open-endedness. This is an interesting observation, as they had not yet been introduced to PLACES.*

## **Creating Community**

Throughout this initial week of the program, the SEEDs cohort took part in a number of community building activities. In order to facilitate a healthy and strong community, the pre-service teachers were asked to consider “how strong mentorships develop” (Robertson et al., 2011, p. 5). This focus on mentorship aims to remind student teachers that “PDP, and indeed teaching itself, is fundamentally about relationships” (p. 5).

*On the table were topics such as our own obligation to mentorship as FAs, peer mentorship relationships amongst module members, and the inclusion of wisdom from educators in the wider community. In addition, much effort was focused on building our own community as we spent time assisting thirty-two strangers to get to know one another and develop connections based on trust and openness. (p. 5)*

One of the first group activities was aimed to help build both the module’s community and also the SEEDs module’s identity. As the Faculty Associates (FA) (GC 2010/2011) explained “we began an exploration of our module’s new name concurrent with our work immersed in community, direct experiences, and a strong focus on environmental learning” (p. 1). The Faculty Sponsor (FS) and FAs saw this “as a unique opportunity to co-develop the new module” with the new group of pre-service teachers. This activity fit well as it was linked “to the process of exploring who we were/are as people, teachers and as a module ([e.g.] core values, passions, intents, etc)” (FA, personal communication 2011).

**Table 12. Proposed Names for the New EE Module.**

|  |
|--|
| Active Sustainable (-ability) Education                                  |
| Ecological, Community, Humanitarian, Openness                            |
| Ecological, Community, Humanitarian, Openness, Sustainability            |
| Ecological, Community, Humanitarian, Openness, Education, Sustainability |
| Environmental Communities and Opportunities                              |
| Environmental Education  |
| Environmental Learning   |
| Environmental Identities   |
| Environmental Ethics   |
| Environmental Awareness Community  |
| Environmentally Conscious Communities                                    |
| Global Communities   |
| Justice, Environment, Mindfulness & Sustainability                       |
| Passion for Sustainable Schools  |
| Sustainable Communities  |
| Sustainable Education  |
| Sustainability Education   |
| Sustainable Schools  |
| Sustainable Futures  |
| Sustainable Environmental (&) Educational Communities                    |
| Sustainability Education in an Environment of Diversity                  |
| Teaching about Sustainable Communities                                   |
| Teaching for Humanity and Environment                                    |
| Wilderness Inspired Learning and Development                             |
| Wild Things Education  |

This process took nearly three weeks involving three stages of deliberations and voting. There were a variety of proposed names for this module (Table 12). The FAs, FS and the teacher candidates collaboratively led the process. Each student was asked to go home and brainstorm three choices for the module's name, and then the next day the 32 students were put into 8 groups of 4 people where they were discuss in groups their selections with the objective of coming up with their top three selections. After submitting them, a committee from the teacher candidates recorded all the submissions, and then the students as a whole group decided to select, through a show of hands the best submissions, for the name of the new module. It is interesting to note that of the

proposed names for this new EE module, the term Sustainable/Sustainability was the most common with 13 references; next was Environment/al/ally with 11 references; Community/ies with 10 references; Education/al with 8 references; and then a considerable gap followed by Humanitarian, Openness and Ecological terms with three references each.

From this list of proposed module names, it was decided by the FAs and FS, a second selection would take place by the teacher candidates where they were required to submit their top three selections on a piece of paper. The results: Environmental Education (18 total votes); Sustainability Education in an Environment of Diversity (16 votes); and Wilderness Inspired Learning and Development (12 votes). The total votes represented the total number of times that name was listed in the top three choices by the thirty-two students. The FS and the FAs decided that a second round of voting by paper would happen with those three proposed names. After the votes were counted *Sustainability Education in an Environment of Diversity* was elected as the new name for the new module. The acronym for the new module became SEEDs, and not SEED, because “[t]he pluralization of [the] name represents the manifold paths, the multiplicity of perspectives, the emergence of possibilities and the generational of [the students’] collective work” (Robertson et al., 2011, p. 2).

The second week began with an introduction to teacher inquiry and a two-day retreat at an outdoor school. As part of the SEEDs module, students were required to design and enact an inquiry project during their long practicum in Education 405 in the Fall of 2011, beginning with the development of an inquiry question in Education 401/2. There was a genuine interest here with the FAs and FS because it was a way to introduce the pre-service teachers to the PLACES scales, and preferred and actual versions since learning environment questionnaires are professional development tools, and teacher inquiry is professional development. At the beginning of the week, students were given an introduction on teacher inquiry, shown examples of what other students have done in the past, and then given time to begin developing their question in groups so that the students could peer review each others’ inquiry question. The FAs described teacher inquiry as a means to be a reflective practitioner, which is both a goal of PDP but also of SEEDs.

In this part of the first month of the program a two-day retreat was held at the North Vancouver Outdoor School (NVOS). NVOS, which is an outdoor school and eco-learning centre operated by the North Vancouver School District, is a partner in the SEEDs program and SFU has a long relationship with the District and the Outdoor School. The objective of this overnight retreat was to help facilitate community in the new cohort module. Evident in the experiences of all those involved as facilitators, overnight retreats are often great community building experiences. For this reason it is not surprising that a large number of the PDP modules at SFU have retreats that occur at the beginnings of their programs. The NVOS was a perfect fit for this, since...

...there is a true gem among us and it has been nestled in the heart of the Sea to Sky Corridor for over four decades. The Outdoor School is a treasured overnight field school and educational resource for experiential environmental studies situated on 165 hectares (420 acres) of ecological reserve in the Cheakamus River Valley near Squamish, British Columbia. In nature's classroom participants can wander under 1,000-year-old cedars; gaze at hundreds of wintering bald eagles; watch a goat kid [sic] being born or marvel at thousands of spawning salmon. (North Vancouver Outdoor School, n.d.).

North Vancouver Outdoor School's *raison d'être* is based on the belief that "[l]earners are inspired to make more informed environmentally sustainable decisions through field study, outdoor recreation and other direct experiences in nature that instill a sense of respect and appreciation of the natural world" (North Vancouver Outdoor School, n.d.).

While at NVOS, the content of the programming included environmental learning activities led by the SEEDs student teachers, who drew ideas from their own previous experiences as well as from the *Project WILD* curriculum and activity guide. Project WILD "links students and wildlife through its mission to provide wildlife-based conservation and environmental education that fosters responsible actions toward wildlife and related natural resources" ("Project WILD", n.d.). Project WILD was a joint project of the Western Regional Council for Environmental Education (WREEC) and the Western Association of Game and Fish Agencies (WAGFA) (McClaren, personal communication), and since 1984 has been part of the Wild Education programs across Canada supported by the Canadian Wildlife Federation ("Canadian Wildlife Federation", n.d.).

Although originally developed in the U.S.A, “since 1984, Project WILD has been a model for WILD Education programs in Canada...under agreement with the U.S. Council for Environmental Education” (“Canadian Wildlife Federation”, n.d.). In British Columbia, Project WILD is directed by the WildBC network and facilitators, which is a program of the Habitat Conservation Trust Foundation and the Ministry of the Environment, British Columbia. Since 1995, WildBC (n.d.) has been the environmental education program of the Habitat Conservation Trust Foundation, a nonprofit conservation agency, and the BC Ministry of the Environment. The vision of WildBC is “to inspire and empower people and their communities to understand and care for the natural world through environmental education” (“WildBC”, n.d.). The lessons in Project WILD provided the teacher candidates early examples on how to plan an environmental learning lesson and developing learning objective(s). Project Wet also provides instructional method(s), background information on topics, describes materials needed and offers step-by-step procedures, describes skills practiced and offers ideas for extending and evaluating the learning, setting and duration for activities; recommended grade levels and group sizes; and the subjects from which concepts are taken. By exposing them early to lessons focused on environmental learning the students would hopefully be provided with an initial foundation in EE as they made the transition from student to teacher.

The week closed with the FS doing a workshop on learning environment research (add to your calendar), and an introduction to the PLACES construct. To begin, students were asked to volunteer and complete the PLACES instrument in order to identify their preferred psychosocial learning environments. This process would also provide information as to the range of preferences among the cohort members. The workshop was aimed at acknowledging to the pre-service teachers the relationship between learning environments and student achievement. Further, the students were introduced to the idea that the smaller the gap between their actual and preferred learning environments, the greater the learning (Fraser, 2012). The facilitators also linked learning environment research (LER) to teacher inquiry, and how LER tools can assist in professional development. The FS and FAs also took this as an opportunity to discuss the eight scales that are components of the PLACES instrument, and how they relate to environmental education. (Did you review that connection in your Lit Review

when you reviewed the LE/PLACES research?) The FS also made it a point to discuss the recent trends in learning environment research showing closer matches between preferred and actual learning environments in field-based courses than in classroom-based courses. This second week of the module was important in introducing EE prescriptive and descriptive theory by introducing the pre-service teachers to EE in its many forms both outside the classroom at NVOS, and inside with PLACES and the eight scales

## Credo Development

While on campus and at NVOS, discussions occurred on the topic of the teaching credo. Their credos were to be statements of their current beliefs about teaching. This assignment, which a similar objective to the first-week student to teacher transition activity, was aimed in helping these pre-service teachers develop their ‘teacher identity’. This teaching credo development assignment, in addition to the bi-weekly reflection assignments, are examples of how the SEEDs module placed “a genuine focus on the transformative journey from student to teacher and on linking the personal and the professional in this journey” (Robertson et al., 2011, p. 3). Over the course of the 12-month program students were to submit four versions of their credos of teaching. Three versions were due during this Education 401/2 semester, and the final version during their last semester Education 405. For the purpose of this study, just the first draft of their credo during Education 401/2 and their last version in Education 405 were reviewed. Here I speak to the first version of this term Education 401/2.

In 401/2 they were to draft three versions of their credo. The first credo submission was due at the end of the second week. This was another opportunity to find out what teaching beliefs these pre-service teachers had come in with into SEEDs.

*Helvia: I think it is important to believe that your capabilities are endless when you are young and to spend your youth imagining and dreaming about life's possibilities. I believe: that children need to learn through first hand experience within and beyond the classroom; growth comes from getting outside your comfort zone and taking risks; it is essential to foster an environment in which children feel comfortable expressing their individuality and difference; in*

*implementing a variety of teaching strategies; in overlap and integration of subject areas; and that students should have the opportunity to explore all issues that are current, critical, and relevant to them as citizens regardless of controversy.*

*Carmen: I believe...a teacher's role is to be a facilitator, encourager and mediator; a teacher should make an effort to gain the respect of his or her students; all students are different and a teacher should respect and encourage diversity; all teachers should be diverse in their teaching styles and technique; that the students and teacher should work together in various ways; in a curriculum where the students in the classroom are able to apply what they have learnt to a boarder world context.*

*Juno: I believe...everyone possesses great potential; that teaching and learning is reciprocal; that the health of the environment is in the hands of our children; mindful of...the many multiple intelligences of all my students; in providing a safe emotional, spiritual, and physical environment...where students trust they are safe and cared about; that children learn best by active participation in the environment; that children need to be empowered to know their decisions and actions will affect our environment; that in order for children to become responsible, caring, active citizens within their society, values need to be practiced and modeled in the classroom; that "it takes a village to raise a child"; and, as a teacher I will be directly shaping what children, adults, communities, societies, and world will look like and how they will operate.*

*Maria: Teaching is about being open, mindful, and drawing all students in, as your students are diverse in terms of culture and learning style. I believe... teachers should practice critical thinking and reflection, so they can analyze and implement changes in their teaching practice; a teacher must be committed to being a lifelong learner; in equality..; a teacher has a significant role in their student's education, but the ultimate responsibility to learn, resides with their students; a teacher must gain trust and respect from their students; and all students have potential, and it's the teacher's role to bring out their highlights...*

*JP: I believe... that students learn best when they have some sort of personal experience or involvement during the learning process...[and] in a safe and respectful environment; that teachers need to teach with respect to a wide range of perspectives, learning styles and cultural backgrounds; that parents should have minimal input in deciding curriculum; humour aids in building a fun and relaxed learning environment; the journey of becoming a teacher never ends; that controversial issues can be*

*respectfully addressed within the curriculum; that teachers should remain a formal, but positive, relationship with their classes and students; that teachers can collaborate with students to determine content covered in class; that content should be evaluated with a blend of experiential reflection, formal testing, and a variety of creative expressions; and that society needs to provide an opportunity for all individuals to learn, grow and contribute positively to their community.*

*Lance: I believe... that learning is a discovery-based process which challenges learners to actively transform information into personal meaning...and is an exploratory process where learners must trail-blaze their own learning paths in order to learn what is meaningful and valuable to them; that learning real world material in real world situations allows learners to be prepared to apply their knowledge and intelligence in real world situations; that every learner has the right to education; that teaching is never subject-focused, but rather, learner and process focused. Thus, a science teacher never focuses on simply teaching sciences, but rather, guiding and facilitating learners to learn science through a scientific process; and that the heart of life is always good, and that by loving, laughing and learning, we can assure that we live well.*

Interestingly, a few of the pre-service teachers defined what they believed to be the goal of education:

*Carmen: That the purpose of education is to empower students with knowledge that reflects the world we live in and knowledge which forces them to analyze the current situation. Furthermore, to understand changes, which could be, made to improve the world.*

*JP: I believe that the goal of education should be to provide an opportunity for individuals to understand and "fit in" to the world around them to the best of their abilities.*

*Maria: I believe the goals of education are for students to actively learn, practice critical thinking and be open to various perspectives.*

*Lance: I believe that indoctrination and education are vastly different processes, and that indoctrination has no place in an educational setting such as a classroom. Thus, as a teacher, I must recognize the differences between the two and ensure that indoctrination does not occur where and when education should.*

These first versions of the pre-service teachers credos were inextricably linked to the SEEDs module and PDP goals. This is an interesting observation at the start of the program. Had the students been influenced over the course of the first few weeks of the program? Or had they entered this program already with these credos as parts of their belief systems? If we refer back to the questions asked of them in the first week of the program, I believe the students arrived in the program with these beliefs about teaching and teachers in place. I will discuss this more in Chapters 7 and 9.

## Module Reflection Assignments

During the third week of the module, the pre-service teachers were asked to write the first of six reflection papers over the course of EDUC 401/2. This first reflection had the students reflect on two questions: *What are your experiences to date in the PDP program, the SEEDs module, and with theory of experiential education?* In general, the pre-service teachers spoke positively of the module:

*Carmen: Entering into PDP was a dream come true for it and me has far exceeded my expectations so early on. Within the first two weeks of PDP, I am able to see how important it is to ground yourself in everything you do and how vital it is to become aware of the values, ideals, and beliefs needed for teaching.*

*Juno: I am thrilled today, only 2 weeks into my dream of PDP and unfathomable idea of being in a module that encompasses my passions, that PDP has way exceeded my expectations... Although I don't feel it yet I have the expectation that PDP will prepare me to really teach with meaning, and make the difference to children, the environment and the societies they are a part of. A difference I so desperately want to make.*

A few students commented on the misconceptions with which they came to the teacher education program, such as expecting the program to be theory and practice heavy and not expecting personal growth and community as foci.

*Carmen: When first entering PDP, I thought the focus would primarily be based on lesson plans, class management, organizing*

*lectures, and developing worksheets; I soon came to realize that it takes much more to become a successful teacher.*

*Juno: I did feel I was entering a community of teachers but the 'village' that I find myself apart of, is what I want for my students. In fact it is what I wish for the school system and beyond.*

Others confessed they had made the assumption they would be trained in traditional methods of teaching rather than progressive forms such as experiential learning embodied in SEEDs:

*Juno: Funny enough I thought that PDP would function like university being fed information to file and be able to replicate, a very individual process. I thought that PDP would be showing me Ministry standard prescribed ways to teach what the children have to know in order to complete the system... I am learning an almost overwhelming amount and very little from the classic 'swallow, regurgitate' method.*

In addition to having the pre-service teachers reflect on their experiences to date, they were also asked to elaborate on their perceived understanding of experiential learning and how that might look like in their classrooms. This was an interesting exercise to delve into the pre-service teachers early conceptions of experiential learning. Some students were quite open and confessed their lack of understanding, but appreciated this early exposure to experiential learning:

*JP: Until PDP, I had not intellectually married the concept that "formal" learning could be a blend of information transfer and personal experiential moments... Actually having the experience of experiential learning presented as it has been by the Faculty Associates, however, has really been a welcome surprise to my dated notion of the culture of learning.*

*Helvia: So, why is experiential learning so powerful? I feel that part of the reason is almost scientifically inexplicable. I firmly believe that when a person comes in contact with the earth, whether it is by digging in the dirt, climbing a tree, creating homes for snails, wandering through tall grasses, swimming in a lake, or any number of other experiences, some minute, intrinsic part of them becomes linked with nature, almost at the molecular level. Like [Richard] Louv*

*and I, they then experience a care that extends beyond personal choice.*

Others appeared to be well versed in experiential learning, understanding both the role of the teacher as a facilitator and the responsibility of the student as the learner:

*Carmen: Our module focuses on the use of experiential learning in addition to community building and I believe experiential learning has a large impact on a student's learning because of direct experience. When engaging with the environment one is learning at a deeper level, because you are essentially utilizing all your senses to learn about the subject matter at hand and therefore learning becomes personal. Through experiential learning, an educator can effectively incorporate various types of learning styles into the curriculum. Furthermore, experiential learning allows the teacher to step away from their dominant role and become a facilitator where the students are encouraged to become more responsible for their own learning and are able to critically reflect on how learning is happening and what one is learning. Challenges arise within experiential learning because of the diversity within the classroom and the administrative challenges a teacher may encounter. [Lastly], experiential learning can be difficult if the educator is unable to get the students engaged in an enthusiastic manner or if a student is not fully active in the process.*

Aside from commenting on their experiences, numerous students spoke of the strong focus this module had on community building. I believe the term community was probably the most used word in describing their experiences to date in the module, and it was something these students spoke of proudly.

*Maria: Community building is a key component to teaching effectively in a classroom, and is interconnected to classroom management... [H]aving a community where there are strong relationships is important, which is evident from our [SEEDs] module. If students help each other, the community grows stronger as a whole, as knowledge and skills are learnt as a group. I feel within our community, we are each other's resource and support as we are knowledgeable in different backgrounds, and have different experiences and perspectives of teaching. Our module values group cohesion, which [the FA] demonstrated through his [learning environment research] results presented to us on Friday. Also, being in a community is more fun instead of doing things individually, as you feel included and safe, within strong communities.*

The NVOS retreat, was often described as a memorable experience where the pre-service teachers partook in authentic, place-based and environmental education programming.

*Lance: Everything we experienced on the retreat is exactly what I wish to provide my students as a teacher. From the quiet times when I could reflect and appreciate the beauty of our planet, to the friendships and relationships which were constructed and strengthened throughout the process, it is clear that opportunities such as our retreat are vital for learning communities to come together. I look forward to providing such opportunities for students, and know that I must work hard and believe in myself as a teacher in order to turn these ideas into reality.*

Just how these pre-service teachers believed they would bring experiential learning and community building into their classroom was particularly interesting since, as was noted earlier, for many this module was their first exposure to these concepts. What proved to be particularly valuable to these pre-service teachers was the BC Ministry of Education Environmental Learning and Experience Guide (2007) that had been introduced to them the first week of the module:

*JP: Whatever my initial reaction to the concept of experiential learning may have been, I have been a quick and easy sell. All of my best learning moments have come at the hand of experience. Broadening what students are learning by exposing them to C.A.R.E [ie. BC Ministry of Education ELE], through experiential learning, is simply taking an opportunity to teach them the curriculum while driving messages deeper into their core, allowing them to appreciate not just the subject matter, but the very world around them in the process. It is knocking down the log walls to show them forest right outside.*

While ambitious and confident of their future roles in teaching, these pre-service teachers did acknowledge some worries about possible barriers in incorporating experiential learning in their practice.

*Helvia: It's tricky to think of how experiential learning will be implemented in my practicum classroom when I have no idea what that classroom will look like. It would be great to be able to bring experiential learning into places where it does not generally exist. I think teachers have a hard time making certain subjects experiential. It seems simple*

*enough with science or phys ed but it gets a little more complicated with the class novel study or math. I would love to be given the opportunity to craft any lesson in a way that allows the students to learn experientially.*

*JP: The trick to experiential learning, of course, is finding a way to incorporate that style of teaching while negotiating the myriad ways a teacher may be confounded in utilizing it. There may be issues with administration/fellow teachers, inclement weather, travel costs/logistics, and even managing ways to incorporate the experiential learning approach with the government-mandated curriculum that must be taught. None of these hurdles will be easily handled, and each requires steadfastness, self-confidence, nimble management, openness to new ideas and strategies, and thinking "outside-the-box."*

*Lance: Although I will likely face many road bumps and blocks while ensuring students experience authentic education outdoors, the last thing I can ever do is give up. I must find ways to responsibly and professionally ensure that students are provided with outdoor opportunities without causing disruptions and conflict among other teachers and education professionals. I have many tasks on my "to do" list as a young and new teacher, but finding ways to get outside is among the most important.*

*Carmen: Challenges arise within experiential learning because of the diversity within the classroom and the administrative challenges a teacher may encounter. Furthermore, experiential learning can be difficult if the educator is unable to get the students engaged in an enthusiastic manner or if a student is not fully active in the process.*

One of the students suggested that the solution to avoid potential barriers to experiential learning was to keep it simple.

*JP: For myself, in a secondary English setting, I can see a number of ways to make coursework more experiential, without having to ruffle too many feathers. A poetry workshop, for instance, could begin with having students go outside as a group and using touch to come up with five words to describe the feel of an object, such as a tree, in its natural state.*

## Community-based Learning

From the fifth to tenth week it was a mix of on-campus seminars and in the school/classroom experiences. The on-campus seminars were not 'on-campus' per se, but "alternative educational settings in the community to model place-based education" (Robertson et al., 2011, p. 3). The settings included using the university's many informal learning environments (e.g. green spaces, outdoor trails and indoor locations), the downtown centre, art gallery, aquarium, science centre and a number of other community venues. At a number of these off-campus/on-campus locations, environmental learning and experiential approaches to teaching were a key focus of the 401/2 seminars. With the FS and FAs leading, pre-service teachers:

*...explored [their] provincial curriculum guide, Environmental Learning and Experience (ELE), as a conceptual framework, and developed practical tools and applications in their teaching and learning on campus, on retreat, during field experiences in the community and on practicum. Workshops, resources and other activities explored in this domain included: Project WILD with David Zandvliet; ELE Workshop with Patrick Robertson; Get Outdoors Workshop with Wild BC and Metro Vancouver; A Day in the Park with Stanley Park Ecology Society and the Vancouver Aquarium; Vancouver Art Gallery and Public Art Walk; and Exploring Hands-On Science at Science World." (Robertson et al., 2011, p.3)*

The application of experiential education (ExpE) and EE to other core curriculum areas was explored during this semester including connections such as "*literacy, numeracy, art, social justice, teaching in specialized subject areas, and to a lesser degree, issues in [Indigenous] education*" (Robertson et al., 2011, p.5). A popular approach was having students participate "in workshops looking at specific subject areas and cross-curricular elements to enhance their learning and teaching practices" (p. 5). These workshops were: Literacy Day (English); Numeracy across the Curriculum (Mathematics); Restorative Justice (Critical Pedagogy); Digital Media (Technology); Modern Languages (Languages); Social Studies Teacher (Social Studies); Art Smarts for Teachers (Art); Engaging Science (Science); and Science Times and Controversy in the Classroom (Interdisciplinary/Critical Thinking). The majority of the workshops were led by facilitators from outside of the SEEDs module. Three workshops (Arts, Literacy and Critical Thinking) were facilitated by the FAs and the FS.

## From Theory to Practice

In early February, in the fifth week of this program calendar the pre-service teachers were required to submit their second of six reflections. This reflection assignment had the pre-service teachers reflect on both the theory and experiences so far introduced in the module and how these might apply when they are in their schools and communities during their short practicum. The questions given as prompts for reflection were: *Talk about theory-practice connections with regards to lesson and unit planning; what were your experiences teaching in pairs and in groups? And what expectations and anticipations do you have during the short practicum placement?*

*Maria: In the past month or so I have learned so much about how students learn best, techniques for getting them to learn cooperatively, and the importance of having students teach each other. I am really excited to have the opportunity to begin embedding these new ideas into lessons. In the past I think that I did good things in my lessons, but I don't think I realized what the implications of doing those things were...I didn't know why I did them, other than to have my students be attentive in class and to produce work that they and I could be proud of...I did not realize what I could do to be even more effective as a teacher; these things are becoming more and more clear now. In addition, I think it is incredibly useful to have curriculum links as a necessity in a lesson.*

*Carmen: It is interesting to see the different ways in which one is able to teach and how you have to alter or shift the way you teach depending on the setting and lesson. I have come to realize that teaching involves more than being organized and present, it takes time and effort to become a confident teacher and a teacher must be able to modify his or her lesson if need be.*

*Juno: Very reflective thoughts about teaching happened at a memorial service. My Grandmothers to be accurate... As I was feeling somewhat bewildered celebrating this summation of a person's life, I drifted into reflection of the past several weeks of PDP. I have been watching teaching techniques, modelled by my FA's and just like My Gran, have made this apart of myself. I have slowly been and will continue to grow and transform myself as a teacher. I feel modelling is one of the most important, and effective teaching skills. This is what I will be doing in the first two weeks observation and exploration weeks of my placement school. I will be learning, watching what the teachers are modelling and practicing these skills myself.*

- Maria: The ministry's assessment using PLOs does not fully assess a student's understanding of material, and should be used with caution. It is the teacher's responsibility that they incorporate the PLOs in a meaningful way for students, and not solely base their curriculum around them....If a student does not have access to proper food for breakfast, have an active lifestyle, or have appropriate psychological or social services provided, it is likely a student's learning process will be negatively affected.*
- JP: Fortunately, the four weeks in PDP have helped allay a lot of...fears and opened me up to new possibilities, with teaching approaches that largely address those fears and give very exciting ways to counter them. Understanding how humans learn, for instance, as simple as it sounds, piques my interest and lets me see new ways to consider teaching. Understanding why students may be acting out (ie. the different learning styles), helps me to adapt and prepare lesson plans that will be more vibrant and engaging. Indeed, I am most looking forward to creating lesson plans and teaching moments that are so engaging that the students are not just interested in what is being put forward, but don't even realize that teaching/learning is happening. This is some of what I have taken from PDP in my first four weeks: being flexible and innovative, acknowledging and respecting the MI's and understanding how huge a difference learning in a community versus learning independently can be.*
- Lance: Before the past four weeks of PDP, I was unsure whether I was ready or not for this step. On one hand, I felt pretty confident that I was already a good teacher who could effectively manage and inspire students within the classroom. I believe that there are many things that people just can't learn in school, such as "how to be a good teacher" – rather, it is something which is innate in people. This unfortunately means that some people just aren't cut out for teaching, which is alright... I'm certainly not cut out for many professions. On the other hand however, despite my confidence in my teaching abilities, I knew going into this program that I still had so much to learn. These past four weeks have not changed me in any way in terms of who I am as a person and a teacher. However, through what I have acquired via our tool kit, I feel I have developed essential skills and tools which I know will be used every day in my classrooms.*

From these reflections, the pre-service students focused on identifying how they needed to carry themselves in their upcoming short practicum: to be confident; flexible/adaptable with lessons; aware of different learning styles; to model to students; have students work

collaboratively; and last, recognizing that student behaviour in class may be an indication of something going on in their lives outside of school, and not represent direct personal attacks or result from their teaching or classroom environment. Let us be reminded these teacher candidates had not yet set foot in a classroom during this program with a School Associate and a regular class of students.

## **Short Practicum – School/Community Experience**

The short practicum occurred midway through the Education 401/2 semester, weeks 5-10. This practicum had the pre-service teachers spend time in a school and a classroom engaged in service learning. There they were exposed to numerous concepts to consider when planning a lesson, and introduced to a myriad of specific teaching and assessment strategies. This service learning activity was compartmentalized as two experiences: School/Community Experience and Classroom Experience

...[ideally], pods of 3-6 student teachers...placed in schools to experience different teaching and learning environments with teachers, administrators and support staff. Students are encouraged to become familiar with the wider community and to make connections and develop relationships within and beyond the school, and are not matched with a specific classroom teacher (exceptions may be made at the Secondary level) until the end of the three weeks. (“Professional Development Program”, n.d.)

The school and the School Associate (SA) that the SEEDs teacher candidate was paired and placed with was to be their SA and school during their long practicum in the Education 405 semester. All teacher candidates are paired with a SA that shares the same teaching grade range (elementary, middle school and secondary) and teaching subject(s) (i.e. Science 10), and placed in a school in the school district that the teacher candidate had requested. Because of the difficulty that exists in simply recruiting SAs to be involved with PDP, the pods at the particular schools were not composed entirely of SEEDs students. Therefore at one particular school there was the possibility that students from 3-6 different modules could be placed together at the same school, but with different SAs.

After a week spent at the schools observing, the SEEDs module came back to campus for a week (week 7) to engage in a professional development (PD) workshop, credo development and unit planning. The next week the pre-service teachers were back at the same school for their classroom experiences. Classroom Experiences had “student teachers matched with specific School Associates [SA] for three weeks of classroom experiences. (“Professional Development Program”, n.d.).

The third reflection assignment came due during week 7, the transition period between the School/Community Experience and the Classroom Experience. This reflection assignment had them focus on their recent experiences in their school placements and community. The prompts were: *What were the most interesting/exciting/fulfilling learning experiences for you? Why? What were the least interesting or most challenging learning experiences for you? Why? What experience(s) surprised you, or led you to feel inspired or was beyond your wildest expectations? Why? What will you do with all you’ve learned over these past two weeks?* The pre-service teachers came back excited, and appreciated the opportunity to be immersed in the school and its community, in addition to the new relationships they made at those schools and their initial impressions of their profession:

*Helvia: I have to say that on the whole I have been really pleased with my first foray into a school community. I feel like I belong, and I feel a great desire to get started in earnest, to really dive into teaching.*

*Carmen: The teachers that I mostly related to were one’s who connected to students at a deeper level, teachers that saw students beyond students, those teachers that respected their students as individual and thus he or she was respected as an individual as well. It became apparent that some teachers have a much closer and friendlier relationship with their students than others. I am quite aware that I am someone who is able to move beyond seeing students as students, I am able to see all students as individual who come from very different backgrounds and live very different lives. I loved that in the two weeks I had the opportunity to get to know many of the students that I will be working with during the three weeks of classroom experience and that they got to know me as a teacher and as an individual as well.*

*Juno: This first experience of practicum has been intense. I have felt I was on a bit of an emotional roller coaster as well as a little overwhelming for the amount of information I was trying to process and make sense of. This being said I found that by the end of the two weeks this was a very satisfying and exciting experience...I really feel privileged to have such an experienced SA. She still does intimidate me but maybe it is more of inspiring me. [Nancy] really cares about her students and I can see the student teacher relationship she has with them is very important to the flow of her classroom.*

*Maria: My experience with different classrooms has ranged from fun and/inspirational to boring and disciplined. The most exciting classroom I attended, which I commented about in my flow assignment was Ms. Catena's Drama 8/9 class. There was full engagement from students, lots of enthusiasm from the teacher and many moments of flow. Within this class it felt very open and the ambiance was expressive and promoted sharing....Classes I found not so interesting and boring fortunately, were only a few. One English class I attended and did not prefer was very structured; the teacher was very strict and not very approachable...Another math class I attended was of similar format, as the teacher was very strict. This particular teacher started class by shaming certain students for not knowing particular math concepts.*

*JP: Having now spent two weeks digging in to the [school] world, I am much more respectful of the reality of the vast number of issues and expectations a professional teacher must deal with on a daily basis. Beyond the demands of the curriculum drive, the incredible range of learning styles, the behavioural issues of teenagers ranging from 13 to 18, the consideration of parental influence, the flood of marking and paperwork and the many other demands of teaching, I felt myself really aware of and drawn into the psychology of dealing with so many people.*

*Lance: Looking back on the two-week exploration at the school, I am beginning to realize that despite my fears and worries, I am ready for this challenge. I likely learned more about myself and what I am capable of in the past two weeks than I have in the past year or two. The experiences which I had ranged from extremely positive, to quite upsetting at times – but such a variance is necessary for me to learn and grow.*

In regards to highs and lows, and what they hope to take from this experience to their up-coming short 3-week practicum coming up, and also to their long practicum in Education 405, the majority were high on feeling welcomed into the greater school community, by the support of their SAs, their teaching colleagues and the students themselves:

*Helvia: The lows were greatly outnumbered by positive experiences, however. I was completely wowed by the possibilities for what I will be able to do with my students both in the upcoming short practicum and in my 405 semester. Mostly these possibilities exist because my School Associate seems really open to embracing whatever it is I have to offer. I feel like I am completely free to try new things, and I feel like she will even adapt her own plans to fit whatever it is that I come up with.*

*Carmen: The only thing missing from the school is the lack of cultural diversity. I think that something that I can bring to the school, in specific something that I can bring into the social studies classroom is looking at the social issues within history because of my major in Sociology. Furthermore, I can be part of their multi-cultural program and be a help to the students understanding the different cultures present in the world and specifically all the different cultures present in Canada. I think I can also be a great asset to the Students for Humanity group within the school because I have an interest in dealing with issues that affect the world and our society, and this is what my undergraduate degree primarily dealt with.*

*Juno: One of my best HIGH/WOW's was that the second week I was doing some place value assessments for Mrs. Autori I tested the children and none but the very confident learners tested very well. My SA had me watch as she retested them and got much better results. I felt awful but it wasn't my SA that made me feel this way. She told me she wanted me to see that someone who the children don't have that close relationship with will get a different result than her. As well assessment is tricky because it depends for little kids on what is going on in their lives or even what time of day it is. I thought about it when I was home and came back. This time it was a reading sight word assessment. As each child came to see me I asked them about their dinner and what they liked to play and they started to relax and I got much better results.*

*Maria: From what I have observed in the science department, the teachers help each other out a lot, and depend upon/support one another. Also there were many teaching techniques I liked during my observation. For example,*

*using a sponge activity students complete after they have written a quiz is a strategy I observed, and such a brilliant idea! This is since students, whom have finished, do not disturb those writing and they get a head start on the next assignment.*

*JP: My most fulfilling moment came in a Film 12 class of 30 students wherein I ran an introductory lesson bridging my background with how the film industry runs. The students were fully engaged the whole class, attending to my experiences, curious about their own futures, and involved with a very lively discussion. Later, walking the halls, I was really surprised at the number of students who called, "Hi, Mr. JP!" as I passed by. A number of them thanked me and commented on how much they appreciated my sharing with them. A great feeling for me...*

*Lance: Although I have a few expectations moving forward, I feel that I need to focus on keeping my mind open, trusting who I am as a teacher and as a person, and integrating everything I have learned throughout the program so far in order to be successful from here on. Everything I have experienced will certainly be of great value as I move forward, but I will address those experiences when the time comes.*

During the *Classroom Experience* phase (weeks 9-10), the pre-service teachers submitted their fourth reflection. Questions that primed this reflection had the pre-service teachers focus on three topics that they may have come across during their short 401/2 practicum: *The unit planning process; diversity in the classroom; likes and dislikes of the experience; and what needs you would like your FAs to address for you as a learner in our remaining weeks of 401/2.* The pre-service teachers did not take the unit planning process lightly. As these students explain creating unit plans and implementing them is a dynamic and complex process:

*Helvia: I have really enjoyed planning my unit on Food Chains over the past month or so and am excited and a bit apprehensive about students actually being a part of the lessons.... In my first lesson I will be playing an animal identification game from Project Wild with the students, in which they will have an animal card taped to their back and will have to identify their designated animal by asking the students around them yes or no questions. When I was creating the animal placards, I found myself thinking a lot about which animals all of the students would be able to identify. I started by using more complex species names, but then I realized that the students would have a hard time guessing these and so*

*I ended up paring them down to simple names like "wolf" and "bird". I did keep some more complex animals because I was thinking about...the gifted student, who is very quick.*

*Carmen: The process of completing a unit plan and the individual lesson plans has been very challenging. The lesson plans which I created going into the first week of the classroom experience have been completely altered. The most challenging part of the lesson plan for me, is trying to get all the information that is required. It is hard to know how much detail is needed for different lessons. In the past few lessons I have taught, I have been trying to use various activities to engage the students and get the material across to them and I have found that the activities which I have been doing with them are helping them immensely to understand the information... lesson planning is a continuous process and is not as easy as it seemed when putting it together prior to the first week of classroom experience!*

*Juno: I find that no matter where I am and this experience seems to be no different, I gravitate to helping people to live well, care for the environment and each other...At the moment our class is doing a long unit on bears that has been broken up into different species of Bears. This encompasses reading, language arts, science, social studies and art, certainly can involve math and physical education as well as any other subject or concept to be learned. I think that this is an effective way to organize learning as a whole, encourage children to start to think critically as it is a building process and to understand that learning (life) is not separate subjects but a combination of experiences and knowledge... As a learning student teacher I would like to be given more time to explore management of the classroom and where we should concentrate our efforts as a teacher*

*Maria: While creating my unit and individual lesson plans, I experienced the amount of hard work, dedication and time it takes to create a good lesson as there are multiple factors you must consider....Deciding the activities and assessment strategies was a difficult process, as I wanted students to be engaged while learning yet also prepare them for their difficult provincial exam....While teaching in class, I am slowly learning the classroom dynamics and how to manage the class.... Concepts I would like to further explore in our 401/402 practicum are classroom management techniques for high school. Extra readings if targeted towards classroom management could be quite useful. Also, more techniques for our toolbox targeted towards the high school age group would be helpful.*

*JP: Rolling into the three-week section of our in-school work, I have had a more in-depth opportunity to understand the*

*diversity found in high school classrooms....Overall, the diversity noted to date has presented some challenges, but I have found that with the support systems in place, and by varying teaching style, a lot of those challenges are not nearly as intimidating as I thought they would be...as for in-class work [i.e. SEEDs module], I can honestly say I think the layout, timing and information flow has been fantastic and extremely well thought-out.*

Lance: I have been very fortunate within my placement at [my school], as I have been able to experience a lot more than I expected within my short practicum. I found myself immersed within a few of the school's extracurricular activities right away which made me feel at home as that is what I grew up within as a student. Furthermore, my sponsor teacher is the tech teacher at the school and so I have become involved with his endeavours a bit as well. However, there are some disappointing aspects of [the school] as well, including finding ways to connect with some of the students.

## **Short Practicum – Strengths and Weaknesses**

The fifth of the six reflections came at the end of the *Classroom Experience* phase of 401/2 in week 11. Reflection 5 encouraged the students to write on three topics: *the second half of short practicum; the practicum observation process by their SA and FA, and what they might have learned; and identifying what are your strengths and what needs to be developed for your 405 long practicum.*

Helvia: *Over the course of this practicum I also developed a special interest that I think may lend itself well to 405 inquiry. One day I took the students out to play soccer. I was really surprised at the huge gender divide that existed in the classroom at even the mention of going outside to play a sport. The boys almost unanimously denounced the girls as not worthy of contributing to the game in any significant way. The girls almost unanimously cringed at the thought of having to play a sport where they would doubtlessly feel insignificant. I was really startled by this. I find it hard to believe that the girls all hate sports so much. I wonder if they simply need to be empowered. And can it possibly be that no one had yet told or shown the boys that females can be equally competent, or perhaps even superior at physical activities? Boy, do I ever feel inspired to change that dynamic!*

*Carmen: In regards to my areas of focus and strength that have arisen from my first teaching practicum are: classroom management, stronger starts and finishes transitions and to become more knowledgeable about the subject matter. In the next few months, I will be thinking about what I expect from students in regards to classroom management, will think about a discipline plan so I am more prepared to deal with students who are not paying attention or misbehaving. My first teaching practicum has brought up a lot of things that I need to work on and this will help me in 405 because I know have the next five months to enhance my skills as an educator. The past few weeks also made me realize that I am able to improve as an educator, I can confidently say that I improved in my teaching abilities as I went through phase 2 of the practicum and have learnt a lot about myself as an individual and as an educator!*

*Juno: I found that getting to know your students and appreciating something about your students is imperative to the success of teaching/learning. I did know this before but not to the extent. I also have become resolved that the classroom has to run according to my (appropriate) values and direction. The teacher, while being non-judgemental and sensitive to individual needs, has to set the tone and operating structure for the classroom...As I am heading into 404, I am nervous because I want to choose that best courses to help me get hired by a district and enhance the skills that I individually need to become a more knowledgeable and effective teacher. I feel a little lost in the course maze and opinions surrounding what courses should be and should not be taken....All in All I am so pleased and excited to be experiencing PDP at SFU.*

*Maria: Highlights reflected from my teaching practice were making lessons different and fun! Though this required more preparation work in comparison to making simple lecture style lessons, I felt the students really enjoyed my teaching style.... Through my teaching experience, I realized how important organization skills are when being a teacher. There are also areas I hope to improve within my 405 semester. These include ensuring all students are in task in a classroom, and adjusting the classroom to ensure students portray on task behavior.... Overall my experience as I have mentioned through my previous reflections, and post conference summaries had been a very rich and rewarding experience! I look forward to improving my teaching practice further within my 405 teaching practicum!*

*JP: The major insight would probably be to do with the wide range of learners we are teaching to. While this is not a profound insight...seeing what this means in terms of how to prepare and approach teaching day-to-day has been eye-opening....All in all, I had a very positive 401/402 practicum,*

*with many moments of insight and reflection that have helped me build on my teaching philosophy and style. Areas where I would like to continue to grow and develop include classroom management (ensuring that I am giving equitable amounts of time to all learners, for instance), finding ways to encourage and organize group work, finding more ways to incorporate the environmental focus of our module, and finding ways to get learners working in "hands-on" and "minds-on" ways.*

*Lance: Although I have my fears and worries about teaching, I am certain that it is the most appropriate and impactful gateway into my eventual career. This being said, I am beginning to wonder if teaching is the field where I will be happy for the rest of my life. I have had several very insightful and powerful self-reflections in the past few weeks as I explored this part of the journey, and began to come up with some tough questions – some too tough to answer at all....Teaching isn't a field where I can directly impact such issues, especially not when I have to worry about curriculum and the financial aspect of education. Ideally, I would love to take students on adventures and field trips to all sorts of conservation and biologically important areas – but whether I can actually do that is largely within other hands. I feel that with all my reasoning and desire to help these issues, I need to step up at some point and take my own agency to affect the situation. As much as I hate to admit it, teaching may be too passive of an approach to these issues for me.*

From what was written struggles continued with different learning styles, multiple intelligences in the classroom, in unit planning, and in the surprising gender divide that exists in schools.

## **Service Learning in the Community**

Upon their return to the university campus from their short practicum, the pre-service teachers were off together to take advantage of a service learning opportunity in a K-12 spring break camp. The *School of Wonderstanding*, as this camp was named, was a collaboration between SEEDs, another module from the PDP (Lifeworks), and two community schools. The role of the pre-service teachers was to take a leadership/instructing role with the young students. The camp's promotional pamphlet read...

*...the SFU School of Wonderstanding Day Camp for grades K – 5 will once again be offered at [the same community schools as last year]. This unique camp experience is offered by these schools in partnership with the Simon Fraser University Professional Development Program (Teachers' Training). This 4 day camp is staffed by student teachers and it runs each day from 9am – 2:45pm... Happy Camping! ("School of Wonderstanding", 2011, para. 1)*

Student comments directed to me during informal conversations that this experience was a positive one all around., A lot of value was placed on the opportunity it provided to hone their tools to engage students and for classroom management. Also it became another community building experience, as the cohort worked together to run this day camp and therefore were able to show their strengths as well as those of their colleagues.

## **Place-based Learning and Term Reflection**

The last three weeks of the term was a mix of on/off campus place-based activities; such as, *Get Outdoors!* with Metro Vancouver Sustainability Educators at Mt. Seymour Park; the Vancouver Art Gallery; Vancouver Aquarium; and a critical thinking workshop. During this last stage of EDUC 401/402 the last and sixth reflection assignment was due. The reflection was to be written with these four ideas in mind: *individual successes; challenges and growth; how has the SEEDs module contributed to you becoming a teacher; and how will you prepare for 404 and 405 semesters?* The majority of the student commentary here speaks to elements that have made the SEEDs experience memorable to them. Specific comments were made about the strong leadership and mentorship of the Faculty Associates; the uniqueness and strength of the SEEDs community with like-minded people; memorable experiences at the School of Wonderstanding, NVOS and the various fieldtrips; and lastly, valuing what they have learned in regards to environmental education theory and practice, and being happy in their decision to apply for this EE module.

*Helvia: I feel very lucky to have been a part of the SEEDs module. When I first received the emails about this PDP session, I was not entirely sure that it applied to me or that I would be successful in it. I had spent so long being an art student*

*(for five years previous) that I had almost forgotten that I ever had any other passions. But at the same time I was feeling that if I did want to go into teaching, I wanted to be a multifaceted teacher, someone who had a lot to offer. And the idea of getting outdoors felt like a gigantic breath of fresh air and an opportunity to reconnect with something that I cared about deeply. So I went for it. I have been incredibly glad that I did ever since....I like that when I think about what we are learning in this module I feel like I can break it down into simple statements and find complexities within them. Engage your students. Play games. Learn through experience. Connect to big ideas. Get outside. Be interdisciplinary. Consider multiple intelligences... I have learned that yes, curriculum is important, and assessment is important, and classroom management is important. But ultimately you are trying to reach out and connect with young people, to push past their apathy and instant gratification issues and "modern" parenting afflictions and bring them into a world of knowledge, and that all of the knowledge that we are trying to impart is in some way connected to the reality of what it is to live on this earth. Everything we teach connects in some way to a bigger picture. It has been my experience that I have surrounded myself by people who make me live what I believe in, because they all have similar values. It sounds ridiculous but shortly into PDP I bought glass food containers instead of plastic and was made to feel really guilty if I drove instead of riding my bike to the carpool meeting place in the morning. I know for a fact that the other modules are not like ours. I think part of what makes us special is that most if not all of us signed up excited by the idea of getting to be a part of something new. We also got Faculty Associates who were excited to be leading a group of students who were doing something new. I often feel that in many ways the SEEDs module is very much about the "heart" of teaching. It is not so much about the details. It has reminded me of things that I already knew, but it has also validated them for me. To me it feels like it is trying to bring natural learning (like when I was a kid and there was a bird that hit the window and broke its neck and my dad showed it to me and spread its wings out and I could see how every feather was so perfect) into a classroom setting. This natural learning worked so well, but somehow we got sidetracked and thought that kids would learn best if they stayed inside all the time and sat down and listened to someone talk and maybe looked at a diagram now and again. I feel like SEEDs is about training teachers to shake up that system a bit and be progressive by moving backwards (!) to the more "natural" way of teaching and learning.*

*Carmen: As the semester comes to an end, I come to realize how much I have grown personally and educationally in just four months. I have learnt a lot about myself as a person and as a teacher. When writing and thinking about my Credo, I am able to reflect on my own beliefs and values not only as a teacher but as an individual as well. When I decided to enter this particular module, I had no idea that it would have such a large focus on being outside the classroom and practising experiential learning. Therefore, I have been a little outside of my comfort zone and will be as we continue our journey into Hadia Gwaa but I have come to realize that learning outside of the classroom is a great experience and you learn far more in this type of setting. I am able to learn various techniques and lessons to use outside of the classroom and will one day be practising this with my own students. Other strengths this module has is its ability to develop a community in such a short period of time. I feel very close to the majority of the individuals within our community and this is rarely seen in many classroom settings. Furthermore, the FA's are very knowledgeable about what is needed to be learnt, our days were very well organized, and the assignments, expectations were very clear. Weaknesses or changes I would want for this module is trying to have an even focus on each grade level. Because this particular module in previous years has only been for elementary student teachers, I think the focus of it is still solely on elementary. I would have loved to learn about what types of places high school teachers can take their students to for experiential learning because the focus of the places we went was solely for elementary students. Furthermore, other areas which I felt like lacked in a high school scenario were the energizers, the majority of the tool kit and activities. I felt like there were many things we learnt about that would be quite difficult to apply in a high school classroom setting because of the age of students, the classroom itself and how the time table itself works.*

*Juno: PDP has definitely finished the healing process of some wounds that have been difficult to heal. I have needed to grow my confidence and belief in my abilities. I needed to develop further positivity with the proof that it does make a big difference to the way challenges are handled as well as the attitude of those around you. I also feel stronger about the need to transform teaching to incorporate our connections with each other and the environment. As stated above, one of the most significant experiences of PDP is the reinforcement that experiential learning and the questioning, reflection process that is entailed, is one of the best ways of teaching/learning. For me, these concepts are now solidified. I am so grateful to be a part of the SEEDS module. I have found like minded people that have given me stronger resolve that these concepts need to be in the*

school curriculum. I feel very close to this group of 34 people, they have shown me fresh ways of looking at teaching and life. I am able to trust these people and have faith that this unique module will continue to be a resource and inspiration throughout my teaching career...and beyond. The modeling and guidance of the modules FA's has given me skills and techniques to put into teaching practice. I also needed to have the support of these people and my fellow module mates to deal with challenges that we will face from a society that is used to a different way. Whenever you are the front line for change, adversity will be found. I think that for the University and future (SEEDs) modules will benefit from a module that keeps people together having a course in the summer that runs as a module helps to maintain the community which ultimately produces better practices in teachers because you have a group of people that are a support system and resource. This module models and has created a tight community, the kind that we want to replicate in our classrooms and the kind that the module boasts as being essential to learning and living well...I also feel that as the job market is tight for teachers, it is a time for change. Teaching is ever changing and adapting to society for society, and needs to reflect and incorporate the ideas of sustainability, environment, connections, new ways of thinking and living as well as creating the communities and villages that will be an essential resource and support for people. Some of these ideas are not new but the delivery and practice in curriculum is. The SEEDs module incorporates these ideas in an inclusive way and gives experiential opportunities to student teachers in a short amount of time. I believe that in the near future the environment will be necessary to learn and deal with as environmental issues will become more and more entangled with daily life. I also believe that the issues schools have today with the high rates of LD , behaviour issues, etc., will be found through research and practice to be made better with outdoor learning so the training that we are receiving in the SEEDs module will help give the skills necessary to take our classes outside and connect with our environments.

*Maria:* My experience so far within our 401/402 journey, has really helped shifted my attitudes, especially in terms of transforming from a student to a teacher. Through course readings, reflections, experiences and support from colleagues, our FA's and SA, I see change within myself and many other colleagues. Having support from our community has been very helpful in not becoming too overwhelmed about assignments and workload. There have been some very memorable experiences, such as the camp of Wonderstanding, NVOS field experience and various fieldtrips and workshops. The environmental module is

*important to be available to future students so that they can learn more about environmental education, and have an environmental focus within their PDP module. It allows the dispersal of knowledge about environmental issues, theories and practice(s) to students less aware, and allows students whom have a greater expertise about the field, to share their wisdom with their colleagues....Suggestions for the future environmental education module would include trying to cater to both the primary and secondary students equally. In terms of classroom management, activities and energizers, it would be helpful to learn ones specifically applicable to various grade levels and subjects.*

*JP: [T]he 401/402 experience has been profound and terribly effective in providing opportunities to analyze and embrace change...Further, I have come to perceive learning as more to do with creating questions than finding answers. Always, a healthy inquiry will lead to stronger understanding. The strength of the SEEDS module comes from the concept that environmental education gives a focal point for all members to rally around and embrace. In some way, I am glad that the focus for our module was not centered around doom and gloom portraits of the state of the world. That information is all too available and obvious. I found the actual study of environment, even in the sense of a classroom environment, quite refreshing and one that gave me many moments of pause for reflection. Never had I specifically analyzed the effects of a stuffy classroom versus one with windows and natural light – or the even more profound effects of a classroom outside. Certainly if/when I am ever in a position to have my "own room," I will attend to what the effects of the environment of that classroom have on the students, and even myself as teacher. Philosophically, I believe the SEEDS module is one that stands out most importantly because it is a "forward-looking" module, one that is taking into account the future of our environment, and our world. By taking future teachers and infusing them with an environmental perspective, SFU is building a wave of educators who will take that message to thousands of students into the future. There can be little doubt that the impact of those students will be hefty and impact the world in numerous ways. Indeed, the students that are taught at the hands of SEEDS teachers may provide the "tipping point" of nurturing our planet back to a healthy balance. Doubtlessly, without SEEDS module teachers, the reason for hope dulls substantially. All of this considered, I feel that with this module being in its growth stages, I would like to suggest that in the future more attention be given to the differences between Primary and Secondary teaching constraints. In preparation of 404 and 405, I plan on doing a lot of reading over the summer, specifically with books based on*

*classroom management and students with difficult behaviours...Thank you to everyone behind the 401/402 SEEDS planning and teaching.*

*Lance: Although I have spent a lot of time thinking about and developing my own educational pedagogy, education has never been where neither my heart nor mind is solely found. Found in such symbolically anatomical structures are a passion for biology and natural sciences – the motivation to learn and share my knowledge of these fields are what drive much of my teaching aspirations. I understand that I will not inspire every student to follow a path into sciences, but if I can help even one student to discover the same passion for science that I have, then I feel accomplished. Another success which I feel must be highlighted is the formation and strength of our SEEDs module. When I heard that we were going to build this module from the bottom up, I began to see what was so special about our module. Not only were we successful in forming a community where each of us belongs and thrives, we have now proven our module to be an exemplary educational program where excellent teachers are moulded and shaped as “ready to hire” educators. My SAs both complimented how prepared, well rounded and ready I was as a student teacher – a complement to both me and our SEEDs community as a whole. At this point of PDP, one thing is certain: I am very thankful to be in the January intake of the program. If I were to go into my 405 practicum now, I’m not sure I would be prepared and ready for such a challenge. Friends of mine who went through the September intake of PDP explained to me that although they eventually got into a groove and made it through 405, they do wish they had a break such as I do before entering the term. I am looking forward to spending the summer relaxing, and preparing both my mind and my toolkit for the 405 semester*

## **Teacher Inquiry and Final Evaluations**

One of the last assignments for the SEEDS pre-service teachers was finalizing their inquiry questions that they were to enact during their long practicum in Education 405. As a reminder, back at the start of the module and Education 401/2 the pre-service/teacher candidates were exposed to the common practice of teacher inquiry in classrooms by their FS in addition to being presented with learning environment research tools as one example to enact teacher inquiry as a means of professional development. While a version was to be submitted to the FAs at the end of Education

401/2, the pre-service teachers would be allowed an opportunity to revise or develop new ones during Education 405's practicum. The following is a list of the student's proposed topics for their inquiries during 405.

- Helvia: What steps can I take as a teacher to improve the self-confidence of girls when it comes to participating and excelling in activities that are considered stereotypically male?*
- Carmen: To what extent does a classroom seating arrangement affect: a) classroom management; and b) student engagement?*
- Juno: Does the participation in outdoor activities and experiential learning before a formal assessment, allow students to test better (cope with formal assessment and memory recall)?*
- Maria: How do you effectively incorporate students with disabilities, within the classroom?*
- JP: Will adding a self-assessment criteria to a rubric increase student accountability when self-assessing their work?*
- Lance: How does outdoor, experiential learning influence student interest and achievement, especially in biology and sciences?*

Noticeably, of the six inquiry questions here only two (Juno and Lance) directly involve the investigation of outdoor learning environments. Other students chose to investigate the gender divide and empowerment (Helvia), classroom management and student engagement (Carmen), inclusivity and engagement with diverse learners (Maria), and student assessment and accountability in the classroom (JP).

At the end of the Education 401/2 the SEEDs pre-service teachers also submitted their Final Evaluation of the 401/2 experience. In this document the pre-service teachers were to document their growth and development toward professional competence as recorded at the completion of Education 401/2. For the most part, the content within this document was similar to the material that was written in the pre-service teachers' six reflections, but they did take an opportunity here to go deeper on a few aspects of their experience and program that were important for them to bring up in this final evaluation, especially on EE practice. Helvia chose to talk more on teacher inquiry.

*It is difficult to uphold the ideals of inquiry when my inquiry is so poorly developed; this is certainly an area that requires further development for me. It has been a struggle to come up with something that I wish to explore in my action research. My goal is to spend some real time observing the students in my class and sorting through all of my reflections so that I can develop a cohesive question that I wish to explore in my 405 semester. Throughout my experiences so far I have tried to keep a running list of the things that I find interesting and intriguing—the gems, so to speak. I think the key to my inquiry lies here, in what sparks my interest....During my 401/402 practicum I had the opportunity to teach a short unit in Science on the subject of Food Chains as well as a Math unit on 2D and 3D shapes....Throughout the unit I used kinaesthetic methods (active games and demonstrations), hands-on activities (model building, working with pattern blocks and 3d models), and integrated art activities (India ink and watercolour painting). Within my science unit I played outdoor games with the students ([Project Wild activities] Deadly Links, Who Am I?), had them work in groups and on individual projects, and integrated creative writing and visual art into their final project.*

Carmen chose to discuss her interest in incorporating more experiential learning in her practice.

*For my 405 practicum, I wish to experiment with more hands-on activities and try to find ways to assess the work appropriately and introduce activities that teach the students something I think is worth knowing...I would love to learn how to incorporate activities such as building castles and/or labelling or making a knights armour into my classroom and furthermore to understand what I would be assessing in these activities and how much the students gain from these activities in regards to the PLO's and the big ideas of the lesson.*

Juno spoke of her confidence now in developing EE integrated curriculum.

*This 401/402 portion of PDP I have developed strengths in some areas of the curriculum. I developed an Art unit plan around the theme of Spirit bears. I kept my lessons varied, relevant and imaginative so that the same skills were not being repeated and interest was held to learn through art, drama, poetry, stories and discussions. These lessons engaged the students in 'Minds-on' and 'hands-on' ways and were delivered in a lively, active way. My 'brightly engaging lesson' was recorded by [my FA] while doing an observation of my lesson making shiny salmon. The lesson included more of a holistic style of learning, modeled by [my SA]. This involves varied experiences within a lesson to achieve learning outcomes. This particular lesson included the reading of a story that lead to prior knowledge about salmon which relates to Spirit bears the subject of the theme. The children then got to explore salmon*

*physical traits through a prepared art project involving colour and texture of scales on a salmon. All the students were engaged and enjoyed participating in the activities.*

Maria placed importance on her credo development:

*Other areas of further development include my credo, as it is predominately based upon my theoretical perspectives and values of teaching. My credo will change greatly through my teaching experience, with the interactions and discussions we have with colleagues, through our personal research and also from professional workshops or conferences we attend.... My short and long term goals include having a credo that reflects my teaching practices, and being committed to lifelong learning to prevent complacency. I hope to achieve this goal through professional readings, development, and experiences. Most importantly I will strive to attain these goals through reflective practices and critical thinking.*

JP was focused on assessment, as it was also the focus of his teacher inquiry:

*Tied to everything, of course, is the challenge of ensuring that learning is being assessed before, during, and after teaching. A number of times my SA reminded me to take a quick assessment with the class to check whether they were grasping the material presented. I feel that I was making some progress with this – a thumbs up, or head nod, for instance – but there are many other assessment strategies available I would like to incorporate into my teaching repertoire. Self and peer assessment, for instance, would be very useful assessment tools to utilize, in that students get to reflect not just on their own work, but that of the peers. This will be another focal point for me over the 405 semester.*

Lastly, Lance elaborated on his drive to incorporate constructivist pedagogy to his practice:

*One area where more focus is required during the 405 practicum is in providing constructive learning opportunities for students. Both my SA and I recognize the benefit of allowing students to learn via exploratory and constructive methods. Furthermore, when I have my own class, constructivist learning is a method I will strive to incorporate. After this discussion, I attempted to structure a constructivist learning lesson. Students were to work in groups to identify and discuss areas of the unit which they understood, found difficult, and found interesting, allowing them to learn from each other.*

## Faculty Associate Commentary

With the end of 401/2 the FAs were required to submit a report for the module to the PDP. There were a number of interesting themes that emerged from the report. One of the most immediate ones, which had been mentioned by the students themselves, was the strong community that developed:

*Our foci for the retreat at NVOS in January was community building and place-based learning with wonderful success. Throughout our module's time together on campus and in the field, a sense of community has been pervasive in all our learning activities and processes. While in practicum, SEEDs students modeled community building in their classrooms in myriad ways.*

*In March, our students participated in...The School of Wonderstanding...Students were given a leadership role, and they decided community building was an important focus. They applied a variety of skills and lesson ideas related to a range of child-friendly themes. Students recognized the correlation between establishing relationships with children in the camp and the community they intend to establish in their 405 practicum.*

Another observation by the FAs was on the pre-service teachers attraction to the BC Ministry of Education's ELE Guides (2007) in helping their understanding of theory and practice:

*Students readily engaged with the ELE framework and are applying it broadly in their theory to practice pursuits, and specifically in their planning efforts and teaching. Students successfully presented 'experiential' lessons on several occasions, in groups, partners and independently, and in indoor and outdoor contexts. Students also integrated experiential approaches into their classroom teaching practices while on practicum with excellent outcomes.*

The FAs also commented on the evidence of the student to teacher transformation in the six reflection assignments:

*Students reported a strong sense of transformation, both personal and professional, in their many reflections over the course of the program. Products of the various processes exploring the transformative journey were also outstanding in quality and depth of meaning. FA/Program*

*Evaluations included numerous reflections on the transformative aspects of the program for our student teachers.*

The FAs made no negative comments regarding their experiences with the SEEDs module in this report to the FC.

## **General Summary**

From the experiences of the six students who were reviewed here, while a number of them knew very little of what environmental education encompassed, their commentary in their credos and in their reflections during this first semester of the program gives the impression that these pre-service teachers' teaching beliefs were aligned with the SEEDs module goals from the outset. It is worth recalling that the students in the SEEDs module all applied to enter PDP (itself a competitive process) and then applied to be assigned to the SEEDS module (also a competitive process) since more than 50 students applied and 32 were eventually accepted for and assigned to SEEDs. The letter which the students wrote in applying for SEEDs also showed considerable commitment to environmental education and sustainability and reveal fairly progressive orientations toward teaching and schools. Hence, the SEEDs students are not a random selection from the total population of students who entered the Professional Program in January 2011. They chose to apply for SEEDs knowing the environmental education focus of the module.

The writings reported here are representative of the module experience and demonstrate considerable enthusiasm for the sorts of experiences they had in SEEDs during the first 401/2 semester. They also demonstrate satisfaction with the choice to apply for SEEDs. It is also apparent that for these students the SEEDs learning community has become very important to their learning experience and that they appreciate the power of the cohort pattern and the value of being part of a learning community. It is also apparent that as the semester progressed, and particularly after their short practicum experience, their idealism was somewhat tempered by the realities of the classroom. They now recognize the need to develop or hone the practical skills of the craft of teaching if they want to operationalize the goals they express in their credos

and reflections. They also appreciate that teaching is a demanding profession, which requires intense commitment. In spite of this recognition, they do not express discouragement. They are looking forward to the Education 404 semester so that they can develop some of the skills they feel they will need before heading into the long practicum in the Fall Education 405 semester. As one student notes, by entering PDP and SEEDs in January they have quite a different experience from those who enter in the September and must move into the long practicum without methods and theory courses of the 404 semester. In a sense, at SFU, there are two, quite different Professional Programs and the SEEDs experience as described in this thesis is one of them. Had the SEEDs module started in September of 2010 rather than January of 2011, this thesis might be describing quite a different student experience.

## **Chapter 6.**

### **Second Semester of SEEDs**

Education 404 is the second semester of PDP and allows the students to select courses that interest them from a variety offered by the Faculty of Education (FOE) “that will build on teaching strengths, and eliminate deficiencies in the preparation for teaching” (“Professional Development Program”, n.d.). In the January PDP intake, of which the SEEDs module was a part, Education 404 began in May 2011 and ran until third week of August. The students were required to take a total of 16 credits, where a course that runs about 4 contact hours per week is worth 4 credits. For the SEEDs pre-service teachers eight of the 16 credits in Education 404 were fulfilled by requiring the SEEDs students to register for a field course in Environmental Education (EE) that would take place in Haida Gwaii, an island group located off the mainland coast of British Columbia across the Hecate Strait. With the remaining 8 credits, students took subject Designs for Learning courses, such as Secondary Science and Mathematics, which provided students with more experience in working with prescribed curriculum in addition to reviewing subject content. The EE course, EDUC 452, began at the start of August, and was an intense 2-week course.

EDUC 452 – Environmental Education is normally associated with the Summer Institute in Environmental Education, and the course is offered twice, in two different formats during the summer semester. The section of the 452 course offered to SEEDS students on Haida Gwaii was not open to other PDP or undergraduate students. However, the section of EDUC 452 offered in Metro Vancouver during the summer of 2011 was open to non-SEEDS students. The non-SEEDS version of EDUC 452 could also have been used by students outside SEEDS to complete the Minor. It is important to understand that the SEEDS option was not the only path to the Minor in EE. The rationale for the change in student access to the Haida Gwaii section (Table 13) of Education 452 as stated by the instructors:

*This year we are re-inventing the Haida Gwaii field school as part of a new integrated program (piloted) within the professional programs, or PDP. This new approach combines foundational work completed within 401/2, with tighter connections to sustainability, teacher education and curriculum development. The idea of the new field school approach is to put this theory into action in a specific place (Haida Gwaii). All students in the module will now work together on a group project during the 404 semester (within the context of a group field experience), before reconvening for 405. We believe this approach will provide even greater coherence to the teacher education program and a deeper understanding of the merits of placed based education.*

**Table 13. Schedule of EDUC 452 (Haida Gwaii) (August 2011).**

| Sunday  | Monday  | Tuesday | Wednesday                              | Thursday                             | Friday  | Saturday  |
|---|---|---------|--|--------------------------------------|---|---|
|   | 1   | 2       | 3                                      | 4                                    | 5   | 6<br>• Leave Port Hardy AM/<br>Arrive at Prince Rupert PM |
| 7<br>• Leave Prince Rupert AM/<br>Arrive Skidegate PM | 8<br>• Activities in Skidegate and Village of Queen Charlotte | 9<br>➡  | 10<br>• Community Mapping Presentation | 11<br>• Mount Moresby Adventure Camp | 12<br>➡   | 13<br>➡   |
| 14<br>➡   | 15<br>➡   | 16<br>➡ | 17<br>➡                                | 18<br>• Return to Skidegate          | 19<br>• Presentation to community / end of course | 20  |
| 21  | 22  | 23      | 24                                     | 25                                   | 26  | 27  |
| 28  | 29  | 30      | 31                                     |                                      |   |   |

## Community Partners

The EDUC 452 Haida Gwaii field course was developed in partnership with Mount Moresby Adventure Camp (MMAC), and the Skidegate Band Council of the Haida Nation. The Mount Moresby Adventure Camp “is a locally developed and run non-profit outdoor education and retreat facility” (Mount Moresby Adventure Camp, n.d.) located on Moresby Island; one of the largest of the islands of Haida Gwaii off the coast of British Columbia.

*Since 2004....the MMACS began to offer a variety of programs with the simple goal of building and maintaining connections between youth and the environment through combining adventure pursuits (action) with natural and human history (context). MMACS has worked extensively with local island organizations to incorporate a variety of different perspectives into our program base as they relate to the land...This has created for our programs an opportunity to participate in real work that matters and that supports the well-being of this island. (Mount Moresby Adventure Camp, n.d.)*

The relationship with MMAC came about because of the previous years of the SIEE occurring in Haida Gwaii. A number of the people involved with MMAC had been outdoor guides and educators with previous adventures in the outback of Haida Gwaii. In planning for this 2011 course with SEEDs, the two instructors decided to change the students work to focus not on a student portfolio, but rather on a Haida Gwaii community project. What developed was a plan for the SEEDs students to collaborate with MMAC in developing K-12 outdoor lessons around MMAC and linked to the BC Ministry of Education K-12 curriculum. The education programming of MMAC had been criticized in the past as not being relevant to the curriculum, losing support from the local school district and in turn the funding for schools to use their built and outdoor learning environment near Mosquito Lake.

The involvement of the Skidegate Band Council (SBC) in the collaboration with the SEEDs program also came about over the years when this field course began here in 2004 (see Zandvliet & Brown, 2006). In other years, the students registered in EDUC 452 - Haida Gwaii had camped and used the facilities of School District 50 – Haida Gwaii in both Masset and the Village of Queen Charlotte (VQC) (see Ormond & Zandvliet, 2009). This had students being based in secondary schools, setting up tents

in the school for sleeping accommodations, and using the home economics room as their kitchen. During the planning stage for this course in 2011, the instructors had been informed by SD50 that they would not be able to offer the facilities of the secondary school in the VQC. Upon hearing the news, a friend of one of the instructors, a respected Haida from Skidegate, offered to talk to the Skidegate Band Council to see if there was a place in their community that could accommodate our large group. Graciously the Skidegate Band Council offered their recreational centre as our home for the duration of the course. This change in the program was soon to be its highlight.

## **Course Theme and Coastline Adventure**

With these new partners involved, a theme was developed for this course that would provide the overarching structure to this community-based program in Haida Gwaii: *Connecting the Curriculum to Place in Haida Gwaii*. As stated in the course syllabus:

*Your module (SEEDs) is a community of learners and practice with a core focus on Sustainability, Education, Environment and Diversity. The pluralization of the module name represents the many paths, perspectives, possibilities and generational nature of your module's collective work. Here in Haida Gwaii we will borrow our ideas about 'place' from the Indigenous Haida perspective, the local natural history and the various historical and industrial uses that have occurred within the archipelago, with specific reference to South Moresby. Thus, all assignments and group work conducted within this course will contribute to the greater project – that of 'planting a seed' of place-based pedagogy and environmental learning that we hope will grow and be valued by our partners in the local community.*

The beginning of the course was by no means regular. The first day the students and instructors met at the ferry terminal in Port Hardy before embarking on a 17-hour ferry ride through the Inside Passage, a coastal route along the BC coast that takes passengers through some of the most rich and diverse ecosystems in the world. The decision to have the course start here and not on Haida Gwaii was for students to conceptualize this course as both a professional and personal journey. As mentioned, this region of Canada has not only a temperate rainforest ecosystem but also the coast is an upwelling region of the Eastern Pacific, therefore the ferry ride provided an

opportunity for a number of students to experience for the first time the wonders that make British Columbia so beautiful.

Besides the coastline journey, a number of course assignments and activities were planned. Six articles were given to students a month before the course started with the intention of students revisiting place-based and experiential education concepts introduced in 401/2 in addition to exposing them to the diversity that currently exists in the field. The decision to pass the students these readings before the class had been done strategically to use the time efficiently of the intense two-week course, and also to provide a framework or better put a lens from which to look through during this course's upcoming experiences. The six articles chosen were:

- *Exploring multiple serendipitous experiences in a First Nations setting as the impetus for meaningful literacy development* by Delores van de Wey (2001)
- *The best of both worlds: A Critical pedagogy of place* by David Gruenewald (2003)
- *Starting Points: Questions of quality in environmental education* by Paul Hart, Jickling and Richard Kool (1999)
- *Environmental education and multicultural education – too close to be separate?* By Hanna Kaisa Nordstrom (201?)
- *Currents in environmental education: Mapping a complex and evolving pedagogical field* by Lucie Sauv  (2005)
- *Place-based education: Breaking through the constraining regularities of public school* by Gregory A. Smith (2007)

These six articles had been selected to expose the pre-service teachers to the broad spectrum of what EE is both internationally but nationally and locally. Smith (2007) and Gruenewald (2003) were included to provide a foundation for place-based education and critical thinking both in theory and in practice. The same can be said for van der Wey (2001) with experiential learning and indigenous education in British Columbia. Nordstrom (2008) provide details on the interface between environmental education and multicultural education. Sauv  (2005) identified 15 currents of EE bringing to light the true diversity and interdisciplinary aspect of EE, with Hart, Jickling and Kool (1999) discussing the prescriptive nature of EE, and the need at that time for EE frameworks with which individuals might examine their educational philosophies in order to “re-establish the relationship between theory and practice (p. 107).

Reviewing the course syllabus and schedule was the first activity the pre-service teachers partook in after getting settled on the ferry to Prince Rupert. At this time students were placed into six groups that corresponded with the six articles. They were then required to present their group's interpretation of the intended message in the article and how it relates to their own practice. They were to present this the following day on the ferry from Prince Rupert to Skidegate. Other notable assignments were:

- *Nature Journals*: Students were asked to collect/record ideas/resources/contacts, reflective writing, notes on shared readings, nature sketches, poetry, etc. in a journal daily. This assignment was not to be collected but time was made during the three-week program for students to journal.
- *Field Trip Activity*: While at MMAC's Camp Moresby, students in pairs were asked to develop in detail a field trip activity that will be linked to their 'Lesson Planning' and 'Development Portfolio' projects. The activity also included pre- and post- activities to prep and debrief students.
- *Lesson Plan Development*: Each grade level group (primary and secondary) was to develop place-based units and lesson plan linking and mapping the BC K-12 curriculum to Haida Gwaii, and specifically South Moresby.
- *Development Portfolio*: Group level presentations of a selection of place-based unit and lesson plans and activities along with place-based reflections were to be given to an audience at the Haida Heritage Centre at Kaay Llnagaay.

After having gone over the assignments, the pre-service teachers were asked a series of questions, which had them reflect back to their experiences in the 401/2 semester and their recent experiences in the courses they had taken in the 404 semester prior to the Haida Gwaii EDUC 452 course. These reflection questions were not part of the course; the teacher candidates were not required to answer these questions and those that did volunteer to answer were asked not to place their name on the document they would submit to me. The commentary below is from the nine students who submitted their answers. The questions asked were: *Did 401/402 prepare you for 404? Why or Why Not? In terms of environmental learning you were exposed to in 401/402, how much stayed with you in 404? What expectations do you have for this Haida Gwaii EDUC 452 course?*

**Student A:** *As a teacher in secondary sciences, specifically biology of Science 10 (including adaptations & ecology unit), I am fortunate that the theme of our SEEDs module is highly relatable to my own teaching. Thus, I feel that not only did our 401/2 discussions of content provide a solid framework for my learning in 404, but it also gave me a headstart in some of my assignments, which were required for my 404 classes. For my Designs for Learning: Secondary Science course, I was able to incorporate much of our 'environmental education' theory into my lesson and unit planning, and furthermore, expanded on some of the theories we discussed. For example, my unit plan was based in the Science 10 Energy Transfer in Natural Systems unit, which I loaded with authentic environmental learning experiences such as nature walks and biome creation projects. Supporting the idea of cross-curricular application of EE, I incorporated environmentally conscious and active lessons into my [Physical Education] planning where students would learn about environmental responsibility and ethics within the promotion of active and healthy lifestyles.*

**Student B:** *I feel that 401/402 helped me in 404. In my 404 classes I was able to use the theory which I learnt in 401/402 but I was also able to incorporate the environmental (holistic) world view into my lesson development. I feel that without 401/402 I would not have been planning my lessons the same way. SEEDs allowed me to explore education in a completely different way than I was familiar with, thereby opening my eyes to new teaching methods and strategies.*

**Student C:** *In my classes I noticed every module has its strengths but what I noticed was that I found myself being more passionate about SEEDs and what we represent than I had realized. When I talked to other SEEDs (and I was the only one to represent my module) I wanted to really share and explain why 'environmental education' is so fantastic. And on more than one occasion I was told how passionate I was about my module's role. Away from my fellow SEEDs I explored environmental education my own way and gained a better grasp on it.*

**Student D:** *I feel that my 404 semester was so very different from my 401/2 experiences. The SEEDs module focused so heavily on environmental education and place-based learning that I felt easy and natural to incorporate environmental concepts into my teaching. It was a different feeling to be in the French and math courses because it's very easy to get wrapped up in the subject matter and feel as though Math (or French) is the most valuable and worthwhile subject to teach. My 404 professors have very compelling arguments to support their passion with their area of expertise. That being said, I think our [FAs from SEEDs] did an amazing job of instilling a passion within us for environmental and place-based education. I feel that 401/2 prepared me for 404 and the work that we did wasn't forgotten in the midst of the summer semester. I believe that I kept the big idea from 401/2 very close to my heart, however, I felt that it was sometimes challenging to incorporate the CARE framework into my Math and French lessons without compromising the lesson by adding a complex environmental element to a concept that is challenging enough as it is. As a new teacher, it is natural for one's primary instinct to teach to the*

curriculum and plan 'low risk' lessons. Nonetheless, there are many ways to effectively incorporate EE into different subject realms. For example, I taught a demo lesson on graphing where I had the students (my peers) use climate information from the Environment Canada website. It was an engaging lesson, and better yet the students were able to relate their data to a real life environmental issue. The lesson was set in a context entirely relevant to their geographic community and to EE. I think that at the end of the day, I need to my best to commit to environmental learning, but without placing unrealistic expectations on myself and without sacrificing student learning.

**Student E:** I found that the environmental education in 401/402 did help me prepare for the next semester. It was the perfect mix of instruction and experience, and I learning a lot about how to incorporate environmental and sustainability education into my classroom. I especially learned a lot about taking my class outside to build an appreciation and respect for the outdoors....I was also able to apply it to 404 with creative lesson plans for PE and English that really focused on being outdoors. I felt a bit limited due to my instructors lack of knowledge about environmental and outdoor education, however I did incorporate it in some way.

**Student F:** I don't see flow between 401/402 and 404. My 404 teachers did not seem aware of the different modules. I feel the teachers could have included assignments that allowed for thought/use of strategies we learned. I don't feel I used 401/402 in 404. My math class was especially distant.

**Student G:** In my 404 semester I did not use much of the environmental education strategies that I learned in 401/402 as I found it difficult to do so. The two courses that I took in the summer semester were 475 - Math for Elementary School Teachers and 473 - Reading. In the math course I found it difficult to integrate any strategies I learned, in terms of environmental education, into the assignments being that I already felt very restrained within the boundaries of the assignments as we were not allowed to prepare our lessons for the grade level we were intending to teach in the fall. Also, this course seemed to come mainly from the textbook, which was never environmental in its focus. Moreover, in my reading class it was difficult to bring in an environmental focus into group projects in which you were paired with people from other modules who were not always open to the idea. In the end, the main problem I faced in integrating environmental education into my 404 semester was, also one I believe the discipline in general faces daily, convincing the masses of its validity and importance in the classroom.

**Student H:** There are many things that 401/402 prepared me for in regards to 404. Firstly, because we had built such a strong community with our own class, I realized how important it was to continue this in 404. One thing I could have done without is the competition. Coming out of a group where it was important for all of us to do well clashed against teachers who were adamant about doing better than everyone

*else in 404. It sucked! I feel attitude like that can really hinder someone's ability to grow. I feel its more important to get everyone to succeed together.*

**Student K:** *I think 401/2 could have provided more support for bringing environ learning into 404. I found I was stuck when given a topic that does not obviously tie into the environment (e.g. Physics: optics). If we would have focused more on bringing enviro learning into topics that were not obviously tied I would have been more prepared for planning.*

From the commentary of the pre-service teachers, the consensus was split between students who felt they had been given sufficient exposure to EE in Education 401/2, both theoretically and in practice, to integrate EE into the assignments and coursework during their Education 404 courses prior to Education 452; while others felt they were taking a subject that to them did not have an obvious connection to the environment and community, such as Physics and Math, and felt that they had not been given enough support and found it difficult to incorporate environmental education principles. A few comments indicated that it was only when they were apart from their SEEDs module did they realize and appreciate the uniqueness of their SEEDs community.

With regards to expectations for the Haida Gwaii course, the pre-service teachers comments were focused on meeting the people and learning about the place through the community. It was also an opportunity for the students to test out their abilities during the duration of this field/project-based course.

**Student A:** *I expect to learn more about the local environment and community, and develop new perspectives of ideas of EE.*

**Student B:** *I hope that in Haida Gwaii I get the opportunity to embrace the lifestyle and meet the people, and learn about the place in a way I never could back home. I went to Haida Gwaii several years ago and I remember it being beautiful (and wet) but I don't remember getting to talk to locals, and I now realize that this best way to learn about a place. That would be my biggest wish in Haida Gwaii that I get to know the locals, learn from the people and hear about the place in a way a textbook could never teach me.*

**Student D:** *My expectations for this course are to pick up where we left off in 401/402 and to centre myself once again with the ELE framework where my heart belongs...I would like to have the chance to consolidate my big ideas for 405 planning and be able to design my First Nations unit for 405 with a confidence and rich understanding of the First Nations culture.*

**Student F:** *My expectation for 452 is lots of fun. I hope to be experiencing lots of natural beauty. I hope also to build up our community after being apart for so long.*

**Student H:** *If there was something I am expecting, its throwing myself completely into the field work we are doing. I want to be committed and loyal to this project. And I'm also expecting to be challenged. I want to be pushed to places I've avoided going, in a positive and developmental way. Its important for me to come out of this feeling like I've overcome and achieved something I could never see myself doing. I'm expecting to be tested, not by others, but by myself and to see how far I can push myself. How far will my mind let me achieve because I've always felt that the mind is the one that will hold you back and the one thing that will make you do whatever you want to do.*

**Student K:** *For EDUC 452 I hope to be outside learning about Haida Gwaii issues, the Haida people and their interconnection to the environment (land, flora, fauna).*

From these comments, it is quite obvious that the teacher candidates were excited about taking this course in Haida Gwaii. This was a place they all wanted to go to. Remember, in the initial call to all pre-service teacher candidates back in July 2010, Haida Gwaii was the defining experience of the SEEDs module. Expectations then were to experience the people and place of Haida Gwaii, while also hoping to leave something behind in exchange for their hospitality.

After the students had been given some time to work on the questions an environmental learning activity was led on the ferry by a few of the students. A month before, a number of the pre-service teachers attended a WILDBC *Project Wet* (n.d.) workshop led by the FS who is a WildBC facilitator. This workshop allows for the participants to try a variety of activities in the Project WET Curriculum and Activity Guide first hand, and learn about water as a vital shared resource. The goal of each workshop is to enable participants to use the manual to foster awareness, appreciation, knowledge and stewardship of water resources to their learners through a wide variety of creative teaching strategies. With the workshop under their belt, so to speak, the students volunteered to lead a number of *Project Wet* lessons on the ferry ride to Prince Rupert. It seemed a perfect match with water being all around us, and the medium we were travelling upon.

The CARE framework from the BC Ministry of Education's Environmental Learning and Experience curriculum guide (2007) was also reviewed during the *Project Wet* activity. The reasons for this was to provide another opportunity for the pre-service teachers to map the BC curriculum to environmental learning activities with the help of the ELE guides; and also since it had been nearly four months since they had last reviewed the document, having them revisit the CARE framework within the ELE could be helpful in the development of their field trips and lessons in Haida Gwaii.

The rest of the day was spent journaling and enjoying the vista of the Inside Passage. When the group arrived in Prince Rupert, with some help of a few people who brought their own vehicles, they all walked off the ferry with their equipment half a mile to a campsite where they stayed the night. Upon arriving, students worked together to get tents set up in the dark. As a participant observer of this migration to the campsite and then settling in, I was impressed by how well this group of 32 people were working together. Everyone was helping everyone. From my experiences the type of communication and organization that was apparent in this group of students takes time to develop when working with complete strangers. The community I was witnessing, I believed was the direct result of students experiences with one another in the 401/2 semester.

## **Crossing of the Hecate Strait**

The next morning was a mirror of the evening before. With the knowledge that one vehicle was to begin shuttling people's equipment and luggage, the students, unbeknownst to this instructor and participant-observer, had organized for half of the group to help with the shuttling of luggage, while the other half walked 2 km to the nearby coffee shop to get breakfast for everyone. Having worked in field programs for nearly a decade, seeing this strong community and teamwork at the start of the course was all-new to me but something I was still going to enjoy.

Once settled on the ferry for the second leg of our ferry trip, we all gathered together for the student presentations on their respective articles. The presentations by the students on the ferry were engaging and thought provoking, so much so, other

passengers joined our group to listen in on our dialogue on the EE topics covered in the articles. Afterwards, a number of students came to the instructor to confess they had enjoyed this review of EE theory and practice.. Some students commented that while they had been exposed to examples of EE theory and practice during Education 401/2, they had not spent time reviewing the literature and research published on this matter. It was only after having had this activity did they realize there was a lot more to EE than they had previously thought, such as issues within the field.

After allowing students a few hours to journal and enjoy the view of the Hecate Strait, which is the body of water separating Haida Gwaii from the mainland, we all came together again for our next exercise. A short one-page article was passed around to read on the controversial issue of using wind energy:

*Wind energy may be one of the fastest growing sectors of the energy industry as energy utilities try to minimize their reliance on fossil fuels. However, this “green-energy” industry is not without its own environmental consequences. Researchers say that nocturnally active birds and bats have increasingly become prey to these large wind turbines, yet little guidance can be found for assessing the impacts of wind energy on the birds until now. (“Science Times”, n.d.)*

After the students read the article we had a discussion on the controversial topic but with one slight improvisation in order to provide an example that a controversial issue can be brought into a classroom: the instructor taking the unpopular perspective of the issue. This was done with two objectives in mind: 1) to facilitate a comfortable learning environment for students with an unpopular view to speak their mind; and 2) in turn to facilitate discussion. A discussion did ensue, with a few students recognizing the deliberate action by the instructor to take the unpopular perspective, and when having done so assisted in facilitating a deeper discussion. In addition, the Wind Energy topic was also rooted in ‘place’ by the instructors bringing up that there was a current proposal to do such a project right where they were, in the Hecate Strait. After 20 minutes of pros and cons, the instructor ended the discussion and then began to debrief the activity. The debrief stage at the end is important, as recognized from previous experience attempting this approach in both K-12 and post-secondary classrooms, as there is a need for closure of the discussion where many of the arguments posed are in fact representative of their ideology and in turn ‘who they are’; therefore, the debrief allows the instructor to

inform the 'why' of this activity, which in short is to have students become aware that 'there is always more than one side to every story'. The 'why' for the instructors is noted on the *Science Times* (n.d.) website:

*The use of these science news articles allows teachers to challenge students' attitudes about science while also promoting scientific literacy. And through the use of controversial topics, students have the opportunity to examine, develop opinions, and discuss pressing and authentic issues of the day, while engaging critically with the culture of science.*

Resources such as *Science Times* show students that science is constantly changing and of central importance to our society. Consequently, we as citizens must not sit idly by and accept the events as they happen without critically analyzing their impact and questioning the decisions surrounding them. It is the intent of *Science Times*, therefore, to help give students valuable insight into the potential social and ethical implications of the science taking place in the world around them. (para. 2)

With our arrival imminent as Haida Gwaii could now be seen in the distance, during the last few hours on the ferry students were on their own but were encouraged to experience our arrival on deck as we entered the Skidegate Inlet and the land of the Skidegate Haida.

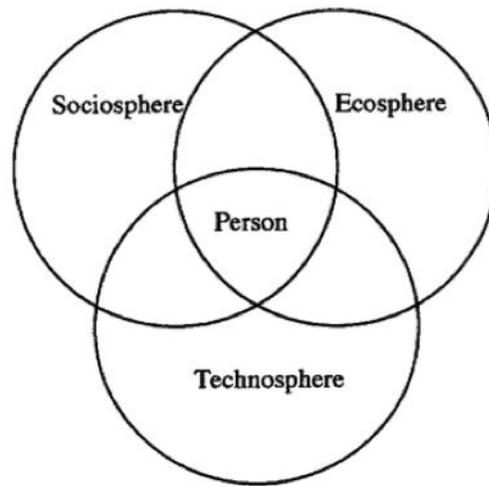
Upon arrival in Skidegate we made our way by bus to the village's George Brown Recreation Centre, which was to be our home for the next two weeks. We were warmly welcomed by the Rec Centre Coordinator and the Chief of the Skidegate Band Council. In addition, we received a visit from our friend from the village who had helped us in arranging our stay in Skidegate. He had only come to check-in, but the natural storyteller he was, he captivated the pre-service teachers attention and found an audience for a good hour of Haida Gwaii tales. These tales were both comedic and dramatic in nature; going from his experiences as a tour guide in Haida Gwaii to a discussion on the Haida Nation itself, its past, present and future.

## **Arrival in Skidigate**

The next day a number of the pre-service teachers spent the early part of the morning settling in and discovering the community that had adopted them as they went

looking for a local coffee shop for breakfast. In doing so, they found one of the village's common areas, Jags Coffee, where the likes of environmentalists such as David Suzuki and Haida's own Guujaaw spend their time in conversation.

Class began at 9am on the bleachers found outside by the baseball field that had a beautiful view of Skidegate Inlet. Here the students were prompted on the activity they were to going to do that day, called *Community Mapping*. This activity had students go into their given 'community' to find out its 'narrative' or 'story' per se, taking note of the socio, eco and technospheres that humans interact with (Fig. 5). This framework is an adaptation by Zandvliet (1999) of Gardiner's (1989) conceptual model of what may drive change in humans. The *Sociosphere* is the interactions between people; *Ecosphere* is the interactions between people with the natural environment; and *Technosphere* is the interactions between people and the built environment. The students were then asked to present their findings in whatever format they believed would effectively represent their community mapping experience. The two communities the SEEDs students mapped were Skidegate and Queen Charlotte City; two communities with completely different identities. Students were given two days and then 're-presented' their community map.



**Figure 5.** *Conceptual model of the interactions humans have on a daily basis*

Note: Taken from *The physical and psychosocial environment associated with classrooms using new information technologies: a cross-national study* by D. B. Zandvliet, 1999, PhD Thesis. Curtin University of Technology. Science and Mathematics Education Centre. Copyright 2013 by D. B. Zandvliet. Taken with permission.

This activity had an observable effect on the group. The objective of learning about your community in this activity helped to make the students feel more at home. People in both groups were anxious to tell the stories of their experiences in their communities. The groups almost immediately began to work on their presentations. With resources being limited, the groups all decided to make poster map representations of their communities. While the presentations were all quite entertaining, the highlight for everyone was the invitation to a BBQ salmon lunch by the Skidegate Band Council. Before going into Skidegate to community map, the SEEDs students had made it a priority to visit the Skidegate Band Office to ask for permission to spend the day mapping in their community and to be aware of any taboos that should be respected. It was during this visit the council invited the whole SEEDs module for lunch. The BBQ salmon lunch was not an informal affair by any means. The whole council came out to welcome the SEEDs module to Haida Gwaii, involving traditional dancers who not only performed for everyone but also tutored both the men and women in Haida dance. What we were not aware of is that the food that had been prepared for the lunch was not just for lunch, but also had been prepared for us to take back to the recreation centre for us to eat for dinner, and a few days more. In my role as a participant-observer, I can tell you myself what a warm feeling this gesture was. We were all left astonished at their generosity, as well as other such gestures in the Village of Queen Charlotte during community mapping, that had the whole group feeling strongly connected to the community.

## **South Moresby and Curriculum Development**

The next day the group made its way from Skidegate on Graham Island to Mount Moresby Adventure Camp on Moresby Island. A small ferry was required to travel between islands. For the next seven days the course was based at MMAC near Mosquito Lake. The program here was divided into three activities:

- 1) Kayaking & Camp in Cumshewa Inlet – one group of students at a time (10-11 people) went with 1 EDUC 452 instructor and 2 kayak guides for a two day/one night kayaking and camping trip in the Cumshewa Inlet.

- 2) Canoeing, Trail Making & Camp at Mosquito Lake - one group of students at a time (10-11 people) with 1 EDUC 452 instructor went for 2 day/1 night canoe and camping trip in Mosquito Lake
- 3) Curriculum Development at MMAC – one group of students at a time (10-11 people) remained at MMAC to work on their group curriculum development project.

In turn the students were divided into 3 grade level groups: primary; intermediate; and secondary. To remind the reader, the purpose of this visit and partnership with MMAC was to develop activities and lessons in the Mt. Moresby region connected to the BC K-12 curriculum that is being used in the schools in Haida Gwaii. Therefore the purpose of the kayaking and canoeing trips was to provide the pre-service teachers with a foundation or experience from which to base their activities and lessons for MMAC. The curriculum development activity gave time for the groups to formalize the activities and lessons that they were expected to have been discussing during the outdoor activities in Cumshewa Inlet and Mosquito Lake.

Upon returning to Skidegate, students had to present their work to a public audience at the Haida Heritage Centre at Kaay Llnagaay. While the presentations were open to anyone interested in attending, personal invitations were given to community members that students had connected with during their community mapping, Skidegate Band Council, School District 50 and the MMAC Society. Input was given to the students on their unit lesson plans. The unit/lesson plans were then edited, formatted and given to MMAC. The final document was titled *Inspired Activities for Mount Moresby Adventure Camp*. The pre-service teachers opened the document by stating its purpose:

*The purpose of this document is to provide and inspire learning activities at Mount Moresby Adventure camp. It is a living document that will be continually shaped through the experiences of those who come. Whether used in their entirety or merely as a spark, the hope is that each lesson will provide an opportunity for others to explore and discover.*

There were three units: *Island Life* with Grade 5 focus; *Connections in Nature* with a Grade 9 focus; and *Balanced Living* with a Grade 11 focus. *Island Life* had eight lessons that were touched on Grade 5 Science, Drama and Art, while developing higher order cognitive skills such as problem solving and critical thinking through topics such how to use our natural resources. *Connections to Nature* had nine lessons linked to

Socials, Science, Visual Arts, Music and Language Arts. The aim with this unit was to gain an appreciation of nature in addition to “using the world around us to make connections that further learning”. The *Balanced Living* Unit, and its five lessons’ prescribed learning outcomes focused on physical education and biology. The aim here was an understanding of both physical health and improving skill performance, to understanding the form and function of other vertebrates and how their associated skills helped or hindered their place along the evolutionary continuum. The course ended that evening with a dinner and fire at the beach at Kaay Llnagaay.

## **Haida Perspectives of the SEEDs Module**

During the course, the SEEDs students and instructors were hosted by two people: the Program Director at the George Brown Recreational Centre (GBRC) and the Youth Centre, and the CEO of the Haida Heritage Centre. At the end of the course I had the opportunity to speak to the CEO of the Haida Heritage Centre and asked him: *Could you speak to your experiences with the SEEDs students, and also your experiences with regards to the collaborative between SFU and Skidegate community in developing curriculum.*

As a political and cultural leader in the community, he commented on the opportunity this course provided to the Skidegate community, by providing...

*...a chance for young Haida people, like myself and [the Program Coordinator at GBRC], to get to know future educators, teachers, people who are going to influence young people in their lives and hopefully get them to understand us better as Haida people which hopefully informs their perspectives on aboriginal people... and ultimately that leads us to hopefully influencing in some ways how those teachers will go about shaping the young minds of [those] that become the next generation of Canadians and hopefully that makes things better for us here in Haida Gwaii in the long-term and for First Nations people ...the more people who are understanding of our challenges, our issues...and also our successes.*

From his experiences with the course, he became aware that at times he does take what he has for granted, and being involved with the SEEDs students is an

opportunity to reengage with his own environment and learn better ways of using what they have to get their youth out and about in the environment.

*I think we can take [our place] for granted, but to see it through other people's eyes sometimes reminds us how blessed we are and we are able to really appreciate what we have and look at differently, a different lens try to utilize it better to teaching our own youth and creating more opportunities for them to get out and about in environmental education...so to start looking at the world...how do we get our kids out of the classroom, what can we do that incorporates our culture into their learning outside of the classroom.*

With regards to how the program was run, he states that he appreciates the way this course was developed by the instructors and its approach in collaborating with the community.

In terms of trying to connect the SEEDs groups with the right people overall I appreciate your approach, the approach taken by the SEEDs program, to be respectful of the community, in the resources of the community, in terms of people in the summer time it is busy time...it isn't always able to pull together all the knowledge holders or connect the group with all the right people all the time but the flexibility in that there is no pressure to try and force people to be there or to do it...when it works it works, when it doesn't we find an alternative way to get that dialogue going to get that information to the students that will help inform their curriculum. So I think we really appreciate that because there are a lot of groups that come up to do research and do stuff and it does put a lot strain on some of our elders and some of our community leaders and people who are always asked to participate and always asked to do stuff ..and I think this grassroots approach and this way of going about things that aligns with the community and what is happening at the time and integrating the activities is really best way to learn as opposed to somebody telling you, there is a lot of value in observing, and interacting, but just observing the way the community interacts with each other and behaves with each other I think that itself is the learning ...the many roles people play, the many hats people wear, is an important part of that.

One important point he wanted to emphasize was the opportunity this course gave them to speak of their successes. So much of the media and news focuses on the doom and gloom of First Nations peoples, but there are many positives. By having this opportunity to showing how their community is growing and evolving, they may be able to provide the inspiration for others to do the same.

*I think you are able to see a lot of the good things and see us as people who are growing and evolving and changing but also still staying true to who we are and where we come from.--. our culture and our connection to our home, our sense of place here in Haida Gwaii and Skidegate, so I think it really gives us an opportunity to influence them and hopefully influence Canadians, the new generation of Canadians to think deeper in their role in protecting the environment, and how protecting the environment helps bring you together with First Nations people as a common cause to look after the place you come from so you have all the good food and good water things to pass on to the next generation...so we all start to get that inherent sense of responsibility to look after the places you come from so you can pass them on and leave them better than you received them which is an important Haida value or Haida way of being ...so I think that is powerful in its own way and it's a really long-term way of looking at it but that is why we do these things...that's why we have them...part of the reason why we built the cultural centre and museum was to culturally share who we are from our perspective and that each time we do that to each group, different groups hopefully changes the way they see the world and influences them in a positive way that they will go off to where they come from and help develop those community, sense of community , sense of togetherness and to feel responsible to do something and to create action, to create change and not to be another cog in the system.*

## **Haida Gwaii Reflections**

In a final reflection, the SEEDs students were asked: *Do you see any connections with what you had experienced in EDUC 452 Haida Gwaii and what is to come in your practicum in EDUC 405?* A number of them spoke of both personal and professional growth; having experiential and environmental education modeled; and, gaining a deeper comprehension of EE, which gave way to inspired ideas for their practicum and more broadly to their own practice.

**Student B:** *I feel like this is a hard question to answer right now because I don't know what my 405 will be like. I definitely will take all of my own learning experiences and think about how that changed me and my view. In Haida Gwaii I learnt a lot about myself, I stepped out of my own 'safety zone', I learned teamwork, and I had several once in a lifetime experiences. When I teach in 405 and in the future I would to use more experiential learning. In 405 I want to have a variety in the reading materials I share with my students, embrace outdoors more (and in any way possible) allow children to experience things and not just teach the students and finally I want to teach more holistically because after all everything and everyone is connected.*

**Student I:** My expectations for 452 were that we would have a fun time. I was not fully prepared on a personal level for the depth of meaning and connection I would have (how could that be prepared anyways?)., and how the learning experiences and teaching experiences seemed to become one. As we were learning things ourselves, I was seeing new ways to teach, and new ways to understand what needs to be taught...on the film side, I have found ways to integrate the learning with Environmental Education [into 405]. A concrete example is for my Grade 9/10 video students, a major assessment comes on "Public Service Announcement" – typically "anti-bullying" is a main theme – but now I will find a way to get the students to explore their environment in the school, and unveil personal connections to the school -- almost community mapping of the school, if I may.

**Student D:** In September I have planned to teach about the First Nations people within nearly every subject. I will incorporate what I have learned in Haida Gwaii into my Social Studies, Science, Art, and Language Arts units. The knowledge that I have gained is so much more genuine than if I had read a textbook on Haida culture. This idea of experiential learning is something that I will take with me and apply throughout my teaching career. Although I won't be able to bring my 405 students to Haida Gwaii, I am able to bring First Nations culture into the classroom and find ways to connect to the First Nations people in our community through guest speakers...I have gained such a deeper insight into the value of experiential learning and place-based education. It's one thing to believe that it has value, and another thing to experience its value. It is incredible how much personal growth can occur in a course like 452 in an amazing place such as Haida Gwaii. Not only did we nail the course objectives, but there were so many other individual experiences that helped us practice patience, endurance of the mind, and community building. I will definitely take those experiences and apply them to my 405 semester and throughout my teaching career.

**Student G:** I believe the connections [between] 452 and my upcoming 405 semester are plentiful in terms of instilling an appreciation for the ones culture. I'm doing my practicum in a small country school in Abbotsford and I think it's important for these children, just as it is for the children in Haida Gwaii, to come to appreciate what their culture has to offer them and the world. It is the hope then that as they develop this appreciation they come to connect with their environment and are proud to carry on cultural traditions and share them with the world.

**Student F:** I hope to bring a lot of the field school activities and attitudes into my practicum. For example, I hope to be more flexible and allow for students to make their own lessons/activities. I tend to be more structured and I now see the benefit for allowing students to explore their own interests.

**Student H:** There are many reasons 452 prepared me for 405. The one that I continue think of and go back to in my mind is that as a

group of dedicated student teachers we pitched a curriculum based on experiential learning. I feel that it has helped support my backbone and put some confidence in my ability as a teacher. To say that I helped structure lesson plans and assessment for a program that needs funding makes me feel like I'm fulfilling my duty to community and students. I have a good feeling that this help in the coming 405 term. It makes me feel like I've done something for the educational systems and have sparked interests in areas that need attention.

**Student J:** My experience of place-based learning in Haida Gwaii has served to confirm the power of direct, environmental education. Although it is not my intention to trivialize place of traditional classroom teaching, place-based learning would definitely enhance students' experience of education were to be incorporated more widely across British Columbian classrooms. While in Haida Gwaii, the most potent and memorable encounters I had were unintentional. A direct result of my being given the opportunity to move naturally with the ebb and flow of my surroundings. To loosen the shackles of over-structured lessons would allow students to pursue their own interests while fostering genuine curiosity and a love for learning. In my 405 practicum, I hope to use the local environment as a means to supplement and stimulate the course material. In this light students will not only learn the government mandated curriculum, but they will gain essential knowledge about their local communities. Place-based learning seeks to reconnect students with their local environments so that learning can happen not solely in a theoretical realm, but in the context of their real lives. Such notions will go a long way to inform my philosophy about teaching. As a pre-service Language Arts teacher, I hope to incorporate local authors who discuss issues pertaining to their local communities so that students can gain insight into the scope and influence of those around them.

## General Summary

Prior to the start of EDUC 452 - Haida Gwaii, the SEEDs students left their cohort for the first half of the Education 404 semester as they took designs for learning courses, such as Secondary Science and Math, in their own areas of interest. A number of students commented on how the EE focus of Education 401/2 played an important role in giving them the confidence and the tools to implement EE practices and activities; although it was more difficult to do in Math, Physics and French than in Science, since according to one student they felt that there was a risk of "compromising the lesson by adding a complex environmental element to a concept that is challenging enough as it is". Others did not feel they were given an opportunity by the designs for learning instructors to incorporate EE elements to their lessons in non-Science courses.

The students had been looking forward to this field course as part of their PDP experience since they had applied to the module nearly one year prior to the start of the course. Coming into EDUC 452 - Haida Gwaii, the SEEDs students came with a variety of expectations, with the most common ones aimed at learning about the place from the Skidegate community, and the larger community of Haida Gwaii, about the environment they would find themselves in after crossing the Hecate Strait from the coastline of B.C. Other hopes were to grasp the confidence and understanding of First Nations culture to develop their own First Nations unit; to be pushed personally to 'places' they have avoided going, in a positive and developmental way; getting an opportunity to infuse the CARE framework from the ELE curriculum guides (BC Ministry of Education); and, strengthening their own SEEDs community

Community-based approaches were modeled and provided students with the opportunity to design and enact community-based programming and lessons. It was obvious to the instructors that these pre-service teachers were affected dramatically from their experiences in Haida Gwaii. The main themes that emerged from the students reflections at the end of the course appeared to focus on elements of personal growth and on insights into how they will teach. Personal growth highlights were developing an appreciation for one's culture having been hosted by a nation proud of theirs; fulfilling an inner call to duty for one's own community through the development of the community/place-based curriculum; and learning a lot about themselves after having stepped out of their previous comfort zone. Insights in their teaching were especially evident in their reflections with the numerous comments on having a much deeper understanding of experiential and environmental education, and the benefits that come from such learning environments. Students made comments to the like of now seeing new ways to teach, and new ways to understand what needs to be taught; embracing the outdoors more to allow children to experience things, and not simply teach to them; and realizing that the most potent and memorable encounters were unintentional which was a direct result of "being given the opportunity to move naturally with the ebb and flow of [their] surroundings".

Hearing from Haida community members after the course, I can acknowledge that the positive experience was a shared one. The flexible nature of the program in developing learning opportunities for the SEEDs students through complete integration

of the pre-service teachers in the community, by volunteering at events during their stay and connecting with local leaders informally rather than requiring the need to identify specific individuals. Most importantly, through this collaboration both communities are learning, the SEEDs and the Haida, and both contributing to the educational process. .

## Chapter 7.

### Third Semester of SEEDs

The third and last semester of the program is the Education 405 practicum in which the SEEDs students are assigned to a classroom for 11 weeks of the 13-week semester (Table 14).

*Education 405: Teacher Semester: In Education 405, you are assigned to a classroom for 10 to 12 weeks of student teaching experience. During this semester, the School Associate and Faculty Associate provide help and guidance, as well as make assessments of your growth toward the achievement of standards of professional competence. (“Professional Development Program”, n.d.).*

During the practicum students were responsible for assignments, such as developing a unit plan, a professional growth portfolio and an action research/inquiry project in addition to assuming responsibility for the classroom program under the guidance of a School Associate—the regular class’ teacher. Occasionally, students were asked to meet on campus for professional development workshops. While the focus on this semester was on their teaching practicum, the SEEDs students were still required to submit six reflections and a revised, final version of their credo. Unlike the last two semesters where I was interacting with the pre-service teachers bi-weekly (Education 401/2) or daily (Education 404/452), during their Education 405 practicum I was not able to interact with them for more than a few days over the thirteen weeks. Therefore I have turned to their comments in their reflections, credo and final evaluation to inform me of their SEEDs experiences during their practicum.

**Table 14. Schedule of Education 405 (September – December 2011).**

| <b>Week</b>          | <i>Monday</i>                                 | <i>Tuesday</i>                        | <i>Wednesday</i>         | <i>Thursday</i> | <i>Friday</i>                          |
|----------------------|---|---------------------------------------|--------------------------|-----------------|--|
| <b>1 - September</b> | 5   | 6<br>• On-campus                      | 7<br>➡                   | 8<br>➡          | 9<br>➡                                 |
| <b>2</b>             | 12<br>• Practicum in schools begin            | 13<br>➡                               | 14<br>• Reflection 1 Due | 15<br>➡         | ➡ 16                                   |
| <b>3</b>             | 19<br>➡                                       | 20<br>➡                               | 21<br>➡                  | ➡ 22            | ➡ 23                                   |
| <b>4</b>             | 26<br>➡                                       | 27<br>➡                               | 28<br>• Reflection 2 Due | ➡ 29            | ➡ 30                                   |
| <b>5 - October</b>   | 3<br>• Teacher Inquiry Questions due          | 4<br>➡                                | 5<br>➡                   | 6<br>➡          | 7<br>• Mid-term prep/ day off teaching |
| <b>6</b>             | 10<br>• Thanksgiving Holiday/day off teaching | 11<br>• Back in school                | 12<br>➡                  | 13<br>➡         | 14<br>➡                                |
| <b>7</b>             | ➡ 17  | ➡ 18                                  | 19<br>• Reflection 3 Due | 20<br>➡         | 21<br>• Provincial Professional Day    |
| <b>8</b>             | ➡ 24  | ➡ 25                                  | 26<br>➡                  | 27<br>➡         | 28<br>• Final Credo Due                |
| <b>9 - November</b>  | ➡ 31  | ➡ 1                                   | 2<br>• Reflection 4 Due  | 3<br>➡          | ➡ 4                                    |
| <b>10</b>            | ➡ 7   | ➡ 8                                   | 9<br>➡                   | 10<br>➡         | 11<br>• Remembrance Day Holiday        |
| <b>11</b>            | 14<br>• On-campus                             | 15<br>• Back in schools               | 16<br>➡                  | 17<br>➡         | ➡ 18                                   |
| <b>12 -</b>          | ➡ 21  | ➡ 22                                  | 23<br>- Reflection 5 Due | ➡ 24            | ➡ 25                                   |
| <b>13 - December</b> | 28<br>• On campus                             | 29<br>• Teacher Inquiry Presentations | 30<br>➡                  | ➡ 1             | 2<br>• 405 and SEEDs End               |

During this semester there was a change in the SEEDs' Faculty Associate. In the PDP, FAs are only seconded from a School District for 2 years. After that they return to their school districts, with the possibility of re-applying to be a FA again after a few years. Therefore the FA who played a critical role in the development and initiation of the SEEDs module was no longer involved. This was an unfortunate consequence of having this module begin in January. The FA contracts parallel their teaching responsibilities in the School District, following the same work and vacation schedule as a teacher working in a K-12 school. This is of course quite practical because FAs are practicing teachers, but spending their time teaching student teachers. Therefore with a January intake module, the one of the two FAs that they start with in Education 401/2 will be different at the start of Education 405.

All was not lost though. Besides still having its original Faculty Sponsor and a second FA who continued with the program, the new SEEDs FA was lucky enough to be the current President of the Environmental Educators' Professional Specialist Association of the British Columbia Teachers' Federation, with a strong background in EE in the K-12 sector as a teacher in the Surrey school district. This was not complete a coincidence. The new FA had acknowledged her interest in applying a year prior, and with the previous FA knowing he was to leave the module supported her interest in applying for an FA position at SFU with the hope to have her assigned to SEEDs when she took up her position at SFU in the Fall of 2011. Once accepted by the Faculty to be an FA for a PDP module, the FS requested her as the FA for the SEEDs module and that request was granted.

## **Opening Scene – Last Preparation for the Practicum**

Week 1 of Education 405 for the SEEDs module started on campus. These few days were used to reconnect the FAs and the pre-service teachers with one another, and have them prepare and work on any last minute worries they might have before they began to phase-in to their practicum. The students' first reflection was due a few days into the second week of the semester, just at the start of their practicum: *What experiences from 404 will carry into 405? What successes and anxieties do you envision happening during practicum around relationship and community building? With your*

*credo in mind, how will you handle a defiant student with respect? How will you manage violence with peace and composure?* The students chose to focus their reflection assignment on the first two questions.

In the students' written reflections the dominant tone was that Education 452--Haida Gwaii was a powerful personal and professional experience. The students also made reference to enjoyable experiences in their Design for Learning courses taken during the first half of the 404 semester: courses in physical education, science, math, social studies, reading, language art and English.

*Carmen: In our course work semester, I had the opportunity to take Designs for Learning Social Studies and Designs for Learning English. Both classes provided me with great activities to use within a classroom and how to implement them in an effective way..., I want to be able to use activities in every lesson that will have the students thoroughly engaged in what they will be learning about. I want them to be walking into the class expecting to start the class off with a fun exercise that will catch their attention...*

*Juno: I found that my 404 experience was great. I learned a great deal from my reading and math courses that I am using in my units*

*Maria: Within my 404 semester, I had a really rich experience. Within my designs for learning science class, we had a great group of science teachers, that all had different teaching styles, and great ways to make the science class "alive"...Also within my 404 semester, I had a great experience within my designs for learning physical education class. As I have little academic background in physical education, I found this course a great introduction in how to conduct physical education classes....From interacting with all the educators within our class, and various guest speakers and teachers, I have learnt that we are not the "experts" as a teacher, as we are constantly learning from each other, even from our students. I think this is really important as if we are open, we can connect to our diverse learners at many levels....*

*JP: Amongst the new faces and ideas I came across during the 404 semester, the one that truly stands out was a guest lecture in my Designs for Learning Language Arts class. The lecturer was incredibly lively, and brought a number of fresh ideas to how to approach Shakespeare, in particular. Having just done Romeo and Juliet with my English 10 classes, and witnessing first hand some of the difficulties teaching*

*Shakespeare (ie. language, iambic pentameter, heavy themes), I welcomed the insights from an experienced teacher. The presenter himself was dynamic, engaging, and relentless. By the end of the class, I felt like I had been run over by a truck. Humour had been interwoven throughout the lesson, so it was no surprise to discover that the presenter had spent years working in improv and on-stage as a comic. At this point I can't imagine having the energy to deliver lesson after lesson in such a way – talk about multiple intelligences – but I aspire to be the kind of teacher that teaches in such an engaging way.*

Lance: During my 404 semester, I really enjoyed all my Designs for Learning classes. I found the two physical education classes to be quite creative and informative with their material, and remarkably did not lead to any redundancies between them...However, as terrific as these courses were, I think the rest of our PDP module students will agree with me when I saw that our trip to Haida Gwaii was the standout highlight of our 404 semester....

The students gave a lot credit to EDUC 452 in strengthening and deepening the SEEDs community as a whole.

Helvia: *Right before I began this practicum I was super focused on community building. It was being in the wake of Haida Gwaii that I did it, I think. I have never experienced community (outside of my family) quite like I did in Haida Gwaii. I have had other immersive experiences before in my life...I remember attending a weeklong trip to Ottawa in high school. At the end of it all everyone was crying and hugging and carrying on about how much they would miss each other, and I felt none of that. I felt no real attachment to either people or the experience. In Haida Gwaii, however, I felt completely different; there was a genuine feeling of warmth and "one-ness" with the others in the program, both those with whom I spent a lot of time, and those I barely spoke with. I feel that my peers were supportive and caring, and I feel a connection to that particular place on the planet. To me, community is not defined by the student being mindful of how they speak to one another but rather being emotionally compelled to be mindful of their work toward? peers. That way, a sense of community is that a false sense, an act, but something that comes from within and feels real. I have taken a long while to get around to it, but I suppose the issue is: what motive do the students have to be responsible members of the community other than to further their own social status or to live up to their parents and teachers expectations? This reflection has been largely about my own anxieties towards building community*

*at the beginning of the school year in a classroom that does not feel cohesive. I know the community building takes time and I'm not in any way giving up on the process... I still believe in it. I just want the students to feel towards their class the way that I felt towards my Haida Gwaii peers—that if they walked into the room with the really big fish that they had caught, each and every one of their peers would burst into applause and cheers and not just because they were starving, but because they were proud. I want that pride in each other to be real, working towards that.*

*Maria: I have also learnt how to become dependent on your community; as our community as a whole has become more close knit, especially after our Haida Gwaii field course.*

*Lance: At the start of the module, I was not yet sold on the importance of building and fostering communities within educational contexts. I figured that for me, as a secondary science teacher, my job was to interact with the students as their facilitator and that was that. Throughout our year, as we have become more and more exposed to opportunities where we learn about community integration and building within education, I have sequentially become more open to the idea of community building and now full support its purpose and importance in a classroom. Much of this reversal in my opinion came from our experience at Haida Gwaii where we took pride into the communities of Skidegate and the Town of Queen Charlotte, and really became familiar with the locals and their lives.*

The place-based and experiential aspect of the EDUC 452 course was also invaluable to these students. It would appear that the course provided a balance of modelling and practice to the pre-service teachers so that they were now confident in conceptualizing how experiential and place-based learning might be integrated into their own practice and in turn their classroom environment.

*Carmen: Also, during our summer course work, I had the opportunity to participate in field school in Haida Gwaii. This opportunity really opened my eyes to what education is and made me re-think how each one of us can learn. During our two week experience, we were provided with opportunities to participate in experiential learning that is far from the traditional way of learning but in the end we were able to learn much more through active participation and it was an organic way of learning. After this time, I reflected on how this experience I had in Haida Gwaii could be brought into the classroom and it is not that easy to implement to be honest. However, strategies that I came up with are: getting the students to learn from each other because it is*

*important to realize that students in the classroom are going to be experts on a certain topic that other students may not know much about. Other strategies can be taking the students out into the community and getting them to know the people and places. For example, if the students are learning about the influence of aboriginal peoples in Canada or in particular BC, you can get the students to visit a reserve and talk to the elders or visit a community centre for aboriginals and interact with them directly to learn their experiences. I hope in the future, I will have the opportunity to implement experientially learning in each lesson I teach.*

*Juno: My experiential learning in Haida Gwaii was invaluable to create very close relationships with my fellow module mates which are a wealth of ideas and resources. I also found the experience difficult because I did so much personal growth in such a short amount of time. The curriculum development is important and valuable to practice as well as working in the environment which really does excite me and often generates the best ideas from me. I really want to implement experiential learning into my teaching practice. I do this that this will be seen at later dates more than now.*

*Lance: The only way to really explain how I learned during our few days on the north island is to admit that during the entire time, I didn't realize I was even learning - it felt as if our experience was natural, flowing, and completely unforced. This is what I considered an authentic learning experience, and I strive to one day provide such lessons. Building off the success I felt with our north island escapades, I knew something good would this way come (to put in a Dylanian expression) as we made our way to Mount Moresby Adventure Camp. It was here that I became "snapped up like hot cakes" (Microsoft Word's synonym for the word "Sold") on the concept of fully integrated place based education. Seeing how many incredible learning experiences we were able to pack into one week of adventures really provided me with excitement and a tingling sensation thinking about future opportunities. I would love to spend the rest of my life providing learning opportunities in settings such as MMAC as it is, in my opinion, where the most important and valuable lessons of life become available and seized (Sorry Shannon... English is kinda alright too I suppose). It is in places such as MMAC that students are put through several challenging obstacles on their way to deep and impactful learning. Firstly, many are taken out of their comfort zones (or in my case, their dream place) and forced to live without our society's security nets. This first step is crucial as it makes students vulnerable; when they are vulnerable, students are open and able to take in information which they may not consider when their minds are focused on their ipods or the clock of a*

*classroom. Secondly, students encounter learning opportunities which aren't simply a subject, but are rather an experience in itself. We learn best from experience, which is what the cross curricular lessons at MMAC focus on providing. For instance, students are much more focused on learning the life cycle of salmon while paddling the Cumshewa inlet and hearing about traditional fishing practices than sitting at a desk in a classroom 50 miles from any salmon stream. Third, and possibly the most important, is that students forget that they are learning as they are too busy having fun and experiencing the process of the activity. This is the heart of education in my mind, and it is where I feel I belong in education.*

## **Rising Action – Start of Practicum**

By week 4 we find the SEEDs students finishing their third week in their practicum. The cohort had not been required to come to campus for campus-based activities over that duration but the strong community that had been formed over the program, and strengthened in Haida Gwaii, organized after-school meetings to provide support for one another. This fourth week also brought with it a reflection assignment. In this second reflection, the pre-service teachers were asked questions about their early experiences of their practicum and about their inquiry project: *Does the inquiry question you developed in 401/404 still engage you? What has been surprising, disappointing and expected during the first stage of your practicum; How is the current threat of a provincial job strike affecting your practicum experience?* This last question on a teacher's strike refers to an issue at that time between the BC College of Teachers, the BC teacher's union, and the BC Ministry of Education.

The reflection comments have the tone of a soldier's letter from the field of battle. Each SEEDs teacher candidate tells of their unique experience in their first weeks during their practicum. An immediate one was focused on 'time'; stress arising from the realization that there is not enough time to cover all the required content in a period, and were not prepared to be as busy as they are. Others spoke about needing to work on their presence in the classroom, and classroom management; discovering that different classes have different personalities; being conflicted whether or not to spend a considerable amount of time with their students if the weather does cooperate; and lastly, one student highlighting the opportunity they were given to try out their EE tools

with a group of students he led with his SA. Here the SA modeled and facilitated the pre-service teacher in EE practice.

*Helvia: So, I guess what I didn't expect was to be stressed. But I am. I end each day with a list of things that I meant to do but didn't get done. I'm finding that fitting in the extras [all the awesome cool things like community building exercises and right brain-left brain interactions and working on self-regulation] is incredibly difficult. Mostly we are just trying to finish our math so that we can finally move on to a new concept. Before 405 I didn't necessarily understand what people meant when they said, "you won't know what you will be doing until you meet the kids". Now suddenly everything I do is taking so much longer than anticipated and all at once I know exactly what was meant by this.*

*Carmen: For the past few weeks, I have been observing, preparing my curriculum, teaching the odd lesson, figuring out my inquiry question and finding ways to engage students in the lessons I will be teaching. My goal in this semester is to establish my presence in the classroom and I want to be certain that classroom management is intact, so that I am able to start doing creative and interactive activities with the students. I would like to work on my classroom management skills in the beginning of my practicum. To make this process as easy as possible for me, the students will be in the rows as my SA currently has the classroom set up. However, I would like to put them in pairs, and in half circles in the upcoming months, as it is part of my inquiry and it also allows co-operative learning to occur in an easier way.*

*Juno: While, I know the strike has changed some of the dynamic to the school and has added stress to the teachers' lives, I feel really well supported by the teachers in the school as well as my classroom teacher. This being said I have noticed some comments such as "Are you sure you want to be a teacher? Are you sure you want to be a part of this profession?" so I am aware that there is disappointment in the current wages and opportunities for advancement. Now that I am teaching increasingly more, and really enjoying teaching, I feel that I have chosen a great profession. The practicum opportunity has reinforced for me that I cannot be discouraged by the current labour atmosphere.*

*My original inquiry question that I wanted to know is, if outdoor experiential learning made a difference to students' assessments? Now that I am in the classroom, on a practical basis, I am wondering if this is too weather dependant to be a reliable inquiry question. I have been introducing some energizers into my lessons and I feel they help students focus. I am curious how the children feel*

*about energizers and am thinking about how best to get this feedback from the students.*

*Maria: This week has been a unique experience, as I started full immersion within my first observation in physical education this week! I had anticipated a lot of work, but not realized how busy I would be & how flexible you must be as a physical education teacher.... Learning how to be flexible in a physical education setting has allowed me to be more flexible in my science classroom! From my teaching experiences this week, I have found the two classes I always have back to back every day (science 10 and p.e. 8) the most challenging in terms of classroom management. . After teaching these two classes, I feel quite exhausted. As I have a significant role in maintaining management in a P.E. class, as I am constantly interacting with the students I have found it to be a great, but tiring experience. After my first day of full immersion I felt exhausted and came home and fell asleep, while planning!*

*JP: Reflecting back on the Haida Gwaii trip, and how it informs my 405 teaching, I would say that the most relevant thing I seem to have "learned"—but I would say it is something hard to measure, let alone trace directly to the trip—is a more relaxed approach to the actual teaching moments. When I look back at lessons I taught in 401, I came to each class very focused and feeling that it was mandatory to hit each "mark" in my lesson plans on time, and achieve a "complete" class, covering all the material of the lesson plan within the one lesson. In Haida Gwaii, the learning moments felt strongest when things were less structured, less "driven" and just allowed to happen. I am now attempting to tune into the moments of learning the better, worrying less about the timing of lessons so that those unexpected learning moments have the chance to breathe. Time and again, I am surprised at the differences between classes—they all have their own personalities and character—such that if the teacher attempts to approach each class the same way, pushing through the same material at the same time, the learning opportunities will be disrupted, if not lost all together*

*Lance: Now into my third week of the long practicum, I am finding myself beginning to settle down and feel more comfortable in my practice... What experience which really helped me see focus and clarity to start my practicum was the field trip which I took with the school's leadership group. It was so nice to be in on the educational role outside of the school walls where I could practice and experience the kind of education which I would like to find myself involved within. Furthermore, I felt as if the other teachers really welcomed me into their community as a professional and saw me as a colleague, not a temporary trainee [as I am sure they very*

*well could have]. It is outdoor experiences such as this trip which remind me why I am in education and how I will make an impact within my teaching and life practices*

## **Climax - Midway Point**

Weeks 5 – 7 brought both joy and pain to the SEEDs students. Although enjoying a Thanksgiving Day long weekend, the time that was not allotted to prepare and plan for another week of teaching was spent on preparing for their midterm evaluations. The midterm evaluation in PDP is not your traditional midterm exam practiced commonly at the post-secondary level. The midterm evaluation in PDP is more a self-assessment by the teacher candidate on their performance during their practicum after numerous meetings and discussions with both their School Associate and their Faculty Associate.

Adding insult to injury, so to speak, it was also during this period that the third reflection and the final credo were due from the students. This reflection presented three questions to prompt their thinking: *What are your experiences to date in your practicum? What are your thoughts on the midterm evaluation? Make a list of things that you would like to learn from your SA or FA.*

This was an interesting set of reflections to read over as everyone approached it from different perspective. Helvia and Juno focused on listing questions they wanted to ask their SA and FA. There was some crossover among the listed questions, especially on how to initiate collaboration with other teachers, education assistants, and school administrators; as well having questions on best assessment strategies. Some of the other interesting reflections were...

*Helvia: How do you talk to parents to tell them what they need to know about their child and get them on board supporting initiatives are efforts to further their child's learning? How do you fit in all the new and inspiring ideas that you come across without creating a learning environment that feels disjointed and constantly changing? How do you teach children to be empathetic? How to create and maintain balance?*

*Juno: I want to continue to build resources and knowledge about different ways of organizing and running the classroom to meet the needs of students that will change from year to*

*year. I really want to grow in taking criticism and moving on, conquering personal challenges, growing and being successful in that growth. This will be reflective in my teaching, where meeting my student's needs is the priority.*

Others spoke specifically of the professional and personal growth moments during their practicum. Lance once again comments on the highlight of acting as a teacher supervisor for an outdoor field trip, and the turning point it was for him during his practicum. An interesting insight comes from two of the reflections, those specifically of JP and Carmen. They both mention how valuable it was to teaching the same material/lesson more than once a day because it allowed them to reflect immediately make the necessary changes to improve their practice. While Maria speaks to her awareness now of how her body language has an effect on her classroom's learning environment.

Lance: *When I started in 405, I was fresh out of 404 and carrying a wealth of knowledge, tools, and activities which I was dying to bring to my classes. However, reality hit quick in early 405 as it was clear that all that I learned in 404 was not enough to ensure success for me in 405. I was then granted the opportunity to join a field trip as a teacher supervisor, which I now recognize as the flipped switch in my practicum where things began to look up. The trip reminded me who I was as a teacher, what I cared about, and where I wanted to be in December.*

JP: *Rather than take the block as a spare, I have taken it as [teaching block], there have also been many benefits to teaching the same material for multiple blocks, in terms of tweaking and massaging things that maybe didn't work the first time, or, changing approaches from one "multiple intelligence" approach to something different. Or changing the order of learning to help gain clarity, or finding an area that needs more "breathing room" for the students to grasp it.*

Carmen: *Having the opportunity to teach the same lesson twice in a day, has been a great way to reflect on what went wrong and what went well, and I am then able to practise the recommendations that my SA has made or alterations in the lesson that I have thought of.*

Maria: *From teaching physical education, I am slowly starting to use more body language to communicate with the students. When completing my first laboratory with my Science 10*

*class, as there are many management issues within this class, I used various techniques to manage the class. From my observation with my SA, I was told I used really good body language to keep the off task kids "on task." My use of proximity and face expressions really helped keep those off task students "on task".*

An opportunity to see how the experiences of the Education 405 and those earlier in Education 404/452 may have altered their priorities as teachers was provided by the teacher inquiry assignment. As mentioned earlier, the SEEDs students were required to enact an action research project during their practicum. During their 401/2 semester that they began to develop inquiry questions. At the time the FAs recognized (and mentioned this to the students), that their question might change over the course of the program leading up to their practicum in addition to being affected by the early stages of their 405 practicum. However, in looking at the questions of the same six students there was little change in their questions.

*Helvia: What steps can I take as a teacher to improve the self-confidence of girls when it comes to participating and excelling in activities that are considered stereotypically male?*

*Carmen: To what extent does one's classroom seating arrangement affect the students engagement and overall classroom management?*

*Juno: How the students themselves feel about brain break/energizers in a learning environment? and Do students prefer energizers inside or outside?*

*Maria: Does collaborative learning helps students learn better?*

*JP: Will adding a self-assessment criteria to a rubric increase student accountability when self-assessing their work?*

*Lance: I would like to investigate the actual and perceived benefits of teaching science (especially Biology) outdoors in natural settings.*

Of these six questions, only two were different questions from that had been asked initially by the SEEDs students. Juno had asked in 401/2 "Does the participation in outdoor activities and experiential learning before a formal assessment, allow students to test better (cope with formal assessment and memory recall)?" Juno's final inquiry question was "How do students themselves feel about brain break/energizers in a learning environment and do students prefer energizers inside or outside?". The focus of

her question remained linked to the use of the outdoor learning environment. Maria had asked in 401/2 “How do you effectively incorporate students with disabilities, within the classroom?” And now in 405, Maria’s final inquiry question was “How does collaborative learning help students better?”. Maria shifted from a focus on inclusivity and diverse learners to investigating the effectiveness of collaborative learning. In the end two of the Inquiry questions (Juno and Lance) directly involved the investigation of outdoor learning environments; one student chooses to investigate the gender divide and empowerment (Helvia), while the others chose classroom management and student engagement (Carmen); collaborative learning (Maria); and student assessment and accountability in the classroom (JP).

Near the end of Education 405, which is also the end of the SEEDs program, the pre-service teachers were asked to submit their final teaching credos. When comparing them with previous versions of their credo there were only slight changes. For the most part, the teaching principles that people started with at the start did not change, but were refined as they went through the program. One student titled their last credo ‘Practical Credo’; one can only assume this title choice was symbolic of having just spent nearly 8 weeks in their practicum.

Two of Maria’s eleven statements on teaching and learning had connections to environmental education pedagogy, whereby she indicated her belief in experiential education and also fostering a learning environment that empowers students to dream big and have the confidence to bring about necessary change.

*I believe that children need to learn through first hand experience within and beyond the classroom in order to understand concepts in a complete and applicable way. I believe in facilitating these experiences for my students.*

*I think that it is important to believe that your capabilities are endless when you are young and to spend your youth imagining and dreaming about life’s possibilities. I want to promote a classroom environment of openness and acceptance where it is okay to dream big dreams and to believe in one’s own ability to create change.*

Carmen had three new statements in her credo list that were not on her first list back in January at the start of the SEEDs module. The new statements focused on creating classroom community, a positive learning environment, having students working

cooperatively and (similar to Maria's), providing students with the confidence and tools to change the world.

*It is vital to create a community within the classroom where all feel included and respected.*

*Students should work cooperatively as much as possible and should be active participants in their learning.*

*I believe that education should allow the students to become role models in their community and are wanting to change the world we live in some way or another.*

For Juno, her last credo list was more organized than her first credo as it focused around three main points, along with a number of sub-topics under each. Two of the three principles made in her credo touched on her role as an educator and the importance of community.

*I believe that "It takes a Village to raise a child" as well as a village to be a part of.*

*I believe as a teacher I will be directly shaping what children, adults, communities, societies, and world will look like and how they will operate.*

Juno's reference to "it takes a Village to raise a child" has elements of the scales Relevance/Integration, Group Cohesion and Student Negotiation as it refers both to the need for a strong community and that the community that one lives in has much to teach us.

Maria's final credo was focused around five principles, rather than the nine points in her first credo, with a number of sub points under those five main elements. While you could argue that Maria's credo had minor elements of EE, for the most part there was little reference to EE practices as part of her teaching credo.

*Teaching is about being mindful and drawing all students in, as they are diverse in terms of culture and learning style. Teaching is about being open, as students and teachers both learn from one another.*

*I believe a teacher must be committed to being a lifelong learner. Teachers should practice critical thinking and reflection, to implement changes in their teaching practice.*

*I believe all students have potential, and it's the teacher's role to bring out their highlights, using various evaluative measures, and engaging instructional methods. I believe in equality, and all students should be given multiple chances to prove their knowledge and skills learnt, as learning occurs through process.*

*I believe a teacher has a significant role in their student's education, but the ultimate responsibility to learn, resides within their learners. A teacher can facilitate learning, inspire and motivate students, but the heart of learning occurs within students.*

While Maria's statements here from her credo do not have an explicit link to the PLACES scales, there are a few links to the PLACES scales Student Involvement and Shared Control, as well her comments on lifelong learner and inclusivity.

Following the same theme of developing a more succinct and organized final credo, JP focused his last credo from twenty-one principles in his first version to nine in his final. Like Maria, JP 's credo did not show explicit links to EE practice.

*I will continue to seek out and read professional writings that will inform and enhance my teaching practice.*

*I will encourage students to question and challenge my teaching methods if they are uncomfortable with what they are experiencing in my classroom.*

*I will decorate my classroom with statements affirming the right to query as a student and a learner.*

*I will create and encourage a classroom that has clear expectations, a positive environment, and respectful behaviour through modeling and clear, consistent communication.*

*I will model appropriate levels of humour so that a fun, but respectful, environment exists in my classroom.*

*I will post comics and cartoons that represent appropriate humour for the students, and connect to the curriculum as much as possible.*

*I will use personal narrative to connect with my students and help them bridge between curriculum and their own lives.*

*I will encourage the use of technology in the classroom as a tool to enhance learning, and model appropriate technology use, so that students learn the concept of being a digital citizen.*

*I will use assessment techniques that provide the student insight into their own growth and learning, not as a method of demonstrating what they do not know.*

Having said that, as with Maria, while these credos does may not appear explicitly linked to EE, some do implicitly. PLACES implicit curriculum is evident, such as Critical Voice. In addition there are general statements about the importance of the learning environment.

Last, with Lance we see again the same pattern of trimming and focusing the credo. Lance's initial credo list contained a total of eight principles but there were just four in his final version. None of the four points had explicit links to EE practice, but like Maria's and JP's, these were general statements about desired teaching practices.

*I believe that learning is an exploration of knowledge, where learners should strive to challenge themselves to discover meaning and/or value from their perceptions and interactions.*

*I believe that learning is most significant and valuable when it is learned in authentic situations, so that learners are prepared to apply their knowledge and capabilities in real world situations.*

*I believe that indoctrination and education are vastly different processes, and that indoctrination has no place in an educational setting such as a classroom.*

*I believe that the heart of life is always good, and that by loving, laughing and learning, we can assure that we live well.*

The references to 'authentic situations' and 'real world situations' speaks to the PLACES scales of Relevance/Integration, while the comment regarding indoctrination not having a place in education can be argued to be linked to the Critical Voice scale.

## **Dénouement – Beginning of the End**

With the midterm evaluation reports out of the way, as well as their final credos, the next assignment that was due during their practicum at the school was their fourth reflection. Here the question that was intended to prompt their reflection was: *How has the midterm process helped you grow in your teaching practice?* The nature of this question prompted responses that spoke to the insights into their practice, which is in fact the mission of the practicum. Examples of this was that flow in the classroom is not dependent solely on the developed lesson but affected by the expectations teachers set with their students on classroom behaviour and quality of work; it helped to understand

how to implement critical thinking successfully; has shown that there are many ways to assess students; has made students aware not just of the areas that need improvement but also their strengths, which was empowering; realizing the importance of being a reflective practitioner; and appreciating how far they have reached and how close they are to achieving their goal.

*Helvia: I used to think that flow happened when a lesson was impeccable; it had just the right amount of everything and the kids were inextricably engaged. However, I have since learned that there is more to it than that. Being able to reach a state of flow in the classroom also has to do with having laid out consistent expectations for the students surrounding behaviour and quality of work so that the framework exists in which they can succeed and focus. If that framework is not yet there, then the social behaviours will be way too distracting, and no matter how engaging the lesson may be, the students will not be able to focus on being successful. In my mind I picture building 4 walls of scaffolding so that a plant can flourish and grow straight upwards.*

*Carmen: The process of sitting down and reflecting on the last few weeks of teaching as a whole was incredibly insightful....The process of sitting down and discussing my mid-term with my SA was very insightful as well. For example, I had thought I was getting to the students to apply critical thinking skills almost every day in a way or another but soon found out that this was only occurring once or twice during the week....by having this open dialogue during the mid-term I was really able to understand how to implement critical thinking into my lesson...I need to be making sure that critical thinking is occurring throughout the lesson.*

*Juno: The first half of my 405 practicum has been very interesting. I have been teaching for several weeks and full immersion and have been gathering much assessment. This process has shown me that there are many ways to assess... Although I have been able to collect much data this way, it does not provide all information necessary or a complete picture of the primary, elementary student's education. I need to organize and find a different way to collect observational data on my students.*

*Maria: Initially, I found it challenging starting to write a midterm, in terms of which points I wanted to include in the various categories....Writing the midterm allowed me to reflect further and analyze my teaching practice in a meaningful way....I found writing the assignment and through the midterm conference, I was able to discover areas I had not realized how strong I am in, that my FA or SA's mentioned.*

*JP: The mid-term process, for me, was interesting in that much of what I wrote about "came to fruition" as I wrote it, or shortly thereafter. The simple process of identifying the three area - development, growth and strength - focused my mind on where I am, why I am there, and how to improve, if necessary.... In the end, if the teacher takes the time to reflect and gauge where they are a few times every year [at the least], they will always be moving ahead, and have a good sense of where they need to be developing and growing. I believe this is particularly important with the changes in the learning environment and apparently changing learning styles of today's students. Or, maybe, students have always been adapting their learning styles, and teachers have always needed to be upgrading and changing their approach to teaching to match. Either way, reflection is a major part of the teaching profession, and always will be.*

*Lance: In my mind, I have had a terrific journey through PDP and believe that I will be an excellent education professional. This outcome has never changed, nor will it ever. I have come so far and achieved my expectations for myself, and that is something that I need to remember....These next few weeks are critical for me as its clear that they will determine much of my future - I plan to make sure that set myself up well for whatever [the] future holds.*

## **Closure - End of Practicum**

The tenth week of the 405 semester brought with it a Remembrance Day long weekend, allowing the pre-service teachers to begin preparing for their final evaluations. With things beginning to wrap up at their schools, their last reflection was due. Having now reached the end of the practicum, and in turn the SEEDs PDP module, this last reflection was a special one. The FAs decided to suggest topics to the SEEDs students that would have them reflect on the EE experiences in their classrooms during their practicum. The prompts for reflection were: *Reflect on any experiential learning adventures you have facilitated in your classroom, and the challenges associated with them; How successful were you in integrating environmental education in your classroom? What were your expectations of PDP prior to your first day? Were they met?*

On the questions relating to experiential learning and EE, the majority of students did implement EE practices, some with limited success,. Some were able to integrate EE directly by taking their students outdoors to contextualize course content, or in the

classroom during topics that give opportunities to link EE content. A theme also begins to emerge here with students commenting on the lack of modeling in their practicum by their SA and in general by K-12 teachers at their placement schools.

*Helvia: I have made an effort throughout my practicum to allow the students to be involved experiential learning, though I have found it more difficult than I had originally envisioned. I wish very much that there was a handy forest right next to the school but alas this is not the case. The schoolyard, while large, is a bare space. The "forest" is a clump of domestic trees and shrubs around one lonely cedar tree, the ground worn bare by trampling feet, one scrubby fern struggling to stay alive. Somewhat uninspired.*

*Carmen: In regards to the Environmental Education aspect of the program, I would have loved to learn how exactly one could incorporate it into the already established curriculum. It would have been nice to see or watch a teacher incorporating this aspect into their everyday lessons in a real classroom setting...I had a difficult time bringing aspects of environmental education into the classroom everyday but I would have to say at least once a week I was able to relate Environmental Education into my lesson. This was done by teaching the students about sustainability when looking at the depletion of bison in Social Studies 10 or when looking at the economic cycle and the Depression in Social Studies 11. I always tried to incorporate Environment Education into various lesson but I would have loved to learn explicit activities you can do in your classroom throughout the year in Social Studies 9, 10 and 11.*

*Lance: A major strength of environmental education is that it is completely cross curricular. This highlights 2 things: 1st off, it provides evidence for how incredibly important as. Reading, writing and arithmetic skills are so critical because they are found in every facet of life and education. I find environmental education to be on the same playing field as it really does relate to everything we do and learn. Secondly, it makes it incredibly accessible whenever I find myself teaching. I am fortunate to be in secondary sciences and physical education, where the opportunity for environmental education experiences are always present. However, I have every confidence that no matter what I and my new teaching colleagues are teaching, we will be able to access and facilitate our lessons through the environmental education lens. One of the most inspiring things I learned all year was from Dr. Z, when he discussed how he will stop at nothing to make sure his students can learn outside. From completing his bus driving license to raising funds himself, his determination and commitment to*

*environmental learning has inspired me to find myself in his shoes. I am now in a position of great responsibility and influence—in order to teach environmental education properly and to its fullest potential, I have to stand up to this commitment myself and implement what I believe is the best learning experience for students.*

With regards to the overall impressions of their PDP experience, there was a generally positive perception. Highlights of the program appeared to be the strength of the Faculty Associates, and when supportive so were their School Associates; the transformational nature of hands-on, experiential learning and environmental education in the SEEDs module; the time spent with the Haida community during EDUC 452 – Haida Gwaii; and being given a solid foundation for both teaching and being an environmental educator.

*Carmen: The program has met expectations in regards to providing us with a long practical experience in the classrooms where we are able to grow as teachers and learn all the essential skills that will allow us to become great teachers. I think SFU's PDP program allowed us to part take in a lot of hands on experiences which was vital in our growth as educators. This module made me rethink what education is and how students should be learning in a classroom. Students should be taking part in their own learning and should be creating their own learning experience in and outside the classroom. Learning does not always have to take part in a classroom; it can be done in a park or in a forest. Active and experiential learning enables the students to be more aware of the learning process and encourages critical thinking and awareness. I have come to understand that if students construct their own learning experiences they will not only be more engaged and motivated, but they will retain the information much quicker, while building confidence in their abilities. This was brought to light for me during our field school in Haida Gwaii and I will continue to develop new and interactive ways to get students more involved in their learning and take ownership for their own learning in and outside of a classroom!*

*Juno: I expected that I would enter a PDP a student and leave the teacher however I did not anticipate walking out as transformed as I feel. It is an intense kind of year to experience and in the SEEDs module, a trip to Haida Gwaii along with being in a group of very like-minded and driven people, compounded the intensity...*

*Maria: Overall, this practicum experience has met, and surpassed expectations. This is mainly due to my mentors [FA and SA]*

*, colleagues at my practicum school and my work effort within this practicum... This practicum experience has been really rich and rewarding. I had the opportunity to collaborate with colleagues and a great secondary school and received great mentorship from my faculty associate from SFU. For me to explore my teaching style I think I was really lucky to receive School Associates that allowed allow me to experiment in their class.*

*JP: The Faculty Associates who lead the module demonstrated a very clear direction and modeled for us daily that need to be open, to be "real" so that we could see how connections are built. I may have come into the program with a strong set of potential skills and focus, but without the lesson of opening up, I would have been much less capable at developing a rapport with the students I encountered in practicum. And, frankly, without that rapport, the experience would not have been nearly as enjoyable and fun as it was...*

*Lance: That being said, over the course of the past year, we have discovered and experienced a whole array of new and exciting aspects of this facet of education. These new ideas and challenges have helped me shape the way I implemented environmental education into my teaching and furthermore, provided me with a solid foundation for getting started in the world of teaching.*

In particular, two comments by students provide some interesting insight into the SEEDs program itself and the student experience. One student confessed when they had initially applied to the SEEDs module they were going to learn solely about environmental issues in depth, they had no idea that EE had a pedagogy, such as community building and experiential education. Another student spoke from the heart, and confessed that their understanding of EE had not changed over the course of the program because for him it has always been a passion and understanding for learning outdoors.

*Carmen: When entering the program, I thought the focus would be around sustainability and environmental issues we are facing in the world; such as: global warming, ozone depletion, water scarcity and overconsumption. However, the focus was around experiential learning and building a community in the classroom that is related to the environment in regards to getting students actively involved in their own environment and how ones environment is simply anything and everything around them. For example,*

*it can simply be a classroom, a hallway or it can be the outdoors; a forest, a park or a trail.*

Lance: Environmental education, to me, hasn't changed over the course of the year. By that, I mean that in the heart of the matter, it is still what it has always been: a passion and understanding for learning outdoors. At the end of the day, educating our youth about in the environment in an outdoor setting is where I see the core of environmental education, and I intended to trail blaze new pathways of achieving this form of education...

Last but not least, the SEEDs pre-service teachers were required to submit their final evaluation on their Education 405 practicum experiences. Again, similarly to their final evaluation in Education 401/402, they needed to speak to their growth in three areas, the student teacher as a growing professional; student teacher and the pupils; and student teacher the curriculum. These three areas, although attempting to focus on the different experiences of pre-service teachers during their practicum, the reflections were also insights into their own practice. A few comments spoke to the need to ] consider a balance between activity and sitting, group work and independent work and indoor and outdoor settings in their learning environment; the importance of development strategies for multiple intelligences; creating classroom community; and coming to the realization that engaging students is a form of classroom management; and finally, developing the ability to make lessons on environmental issues relevant to the student's daily life.

*Helvia: When planning lessons I am always considering the balance between dichotomies: activity and sitting, group work and independent work and indoor and outdoor settings. I think about the hook that will draw the students in, and the challenge or puzzle that will keep them engaged. In my science lessons students are building 3D shapes and catapults and looking for interesting structures outdoors, in language arts they are cutting up words and moving them around to make poetry and in math they are building graphs on the classroom floor using manipulatives. I can tell that the students are engaged by the number of hands that go up when I ask a question, by the way that their eyes are trained on me, and by the way that they apply their focus solely to the task at hand.*

*Carmen: Each one of my lessons was organized through a goal of the day and this goal touched on the prescribed learning outcome of that particular grade and ensured that I*

*developed my lessons around the educational and curriculum goals. In regards to making the lesson relevant to the students this was done through bringing in media clips or examples they relate to as youth. For example, when looking at the growth of industries in the 1920s , I was able to relate that to consumerism, watched a clip from "A Story of Stuff".*

*Juno: I have incorporated a strong belief in community into lessons and creating a classroom community. As well I feel passionate about the outdoors and environment. I want children to not feel confined by their classroom but use the space as a launching pad into experiential learning and exploring the world. This growth has been more and more present in the second half of my practicum. I have demonstrated this growth by allowing events, weather and daily goings on to alter the plans of the day to seize opportunities to learn. On a day that was not supposed to be sunny, I altered a lesson block to take the students outside to do a silent walk using ears, eyes and noses to experience autumn. We stopped at a cedar tree to smell the leaves and learn how to identify a cedar tree and then move on to the playground and other equipment where I gave instruction of how I wanted the students to engage in some physical education. I had felt that I needed to develop and grow in this area as my earlier experiences with teaching I was not as relaxed to put into practice my credo.*

*Maria: From teaching my students at my school, I have realized how each student learns in a unique way. While developing the curriculum for each class, I have included many strategies to tap into the students' multiple intelligences. Another area of further development I have recognized through a post conference with my FA is challenging the analogy of "students being passive vessels", especially within my science classes. In future lessons I hope to be able to better connect my lessons to the real world and facilitate the processing of information within students while teaching them. I hope to understand better, how leaning looks like and how to facilitate a curriculum that both student and teacher centered.*

*JP: In the area of working with curriculum, I have seen the multiple benefits of a strong, balanced approach to lesson planning. By taking into consideration the multiple intelligences, I have engaged students on a number of levels. Scaffolding my lessons so that students gain traction of comprehension as they immerse into a specific subject has minimized the amount of questions and confusion, so students have completed assignments and classroom work with solid results. Flexibility with expectations has allowed students to learn at a level that is comfortable to them, while still requiring appropriate work output. Combined,*

*these areas have helped with connecting to the students, made the teaching process more dynamic, and even aided in making classroom management less challenging. When students are engaged, they do not require as much re-direction. My best lessons have always incorporated a variety of connections, providing a number of access points for students, depending on their learning strengths. Audio-visual clips, kinaesthetic movement, and the opportunity to write or draw for their assignments, have all proven to be useful ways of connecting the students to the curriculum.*

Lance: *My unit plans reflect my experience and knowledge in these teaching fields. Of note is my Science 10 unit plan on Ecology, which not only covers the curriculum, but brings in other important issues as well. It is clear that I find these issues of incredible value; however, the students are becoming passionate about learning them as well. I used exit slips to find out what the students wanted to learn more about in the class, and made a conscious effort to include many of those issues. For one lesson, I had the students debate a highly controversial ecological issue which I thought they needed to become aware of. My School Associate observed that the students were all participating and engaged in the issue, and understood the cases which I had presented. This was one of my highlights of my practicum as I was able to see just how much I could inspire students to care and discuss what I consider the most important educational issues.... An area where significant growth has occurred in my teaching is within how I assess students. I am able to implement many different and meaningful assessment techniques for all my classes. For example, my Biology 12 Cell Structures unit includes several formative assessments such as poster projects, homework review questions, open dialogues and recursive learning opportunities. In my Science 10 Ecology unit, students write an open-ended research report, perform an experiment, go on several nature walks, and learn about several large scale ecological issues which affect everyone including themselves.*

## **General Summary**

Upon entering their final semester and teaching practicum, the SEEDs students appeared to be confident and well prepared after having gone through the Education 404 semester taking designs for learning courses and the community-based, experiential EDUC 452 – Haida Gwaii course. The experiences in the Haida Gwaii course continued to reverberate in the students reflections, giving credit to this course for strengthening

the SEEDs community, and modelling place-based and experiential education. The community was so strong, that students created their own support group outside of the program in order to help one another during their practicum.

With professional growth comes personal growth and the SEEDs group was no stranger to that. The SEEDs students, went through a roller-coaster of emotions and experiences during their practicum. New insights and revelations on the profession were many, such as not being prepared for how busy teachers are; how little time there really is to cover a topic in a period; discovering that different classes have different personalities; how do deal with weather constraints with EE programming; how valuable it is to teach the same subject twice or more in one day; and feeling fortunate that they were given the opportunity to be able to put their EE tools into practice.

With regards to EE and implementation during their practicum, the pre-service teachers during Education 405 appeared to be more pre-occupied with classroom management, student engagement and unit/lesson planning than they were in attempting to integrate and implement EE during their practicum. Only two of the six inquiry questions looked at were directly related to EE - specifically outdoor learning environments. The rest investigated the gender divide and empowerment; classroom management and student engagement; collaborative learning; and student assessment and accountability in the classroom.

In the SEEDs final evaluations of themselves during their practicum, little was mentioned about EE directly. A few comments spoke about the need to always consider a balance between activity and sitting, group work and independent work and indoor and outdoor settings in their learning environment; the importance of development strategies for multiple intelligences; creating classroom community; coming to the realization that engaging students is a form of classroom management; and developing the ability to make lessons on environmental issues relevant to the student's daily life.

However, when opportunities did arise to implement EE they were taken. The majority of students did implement EE, though some with limited success,. Some were able to integrate EE directly by taking their students outdoors to contextualize course content, or in the classroom during topics that give opportunities to link EE content.

Overall, the pre-service teachers found their experience in SEEDs a positive one but would have liked more modelling in experiential activities, and more specific examples of classroom-based activities grounded in the current curriculum.

## Chapter 8.

### Student Assessment of SEEDs

#### Interview Matrix

As part of the process of examining the SEEDs program from the perspective of students an Interview Matrix process was employed with a group of 25 students, representing 78% of the total student body. The Interview Matrix method (Government of Canada, n.d.) has been described in detail Chapter 3. The process is claimed to have the advantage of allowing everyone to have a chance to both respond to a set of four questions and, in turn, to listen carefully and record the responses of colleagues to the same questions. In the context of reviewing the SEEDs program the matrix comprised four questions.

Question 1 addressed the theme of student perceptions of how or whether the SEEDs experience had been transformative or had produced significant changes. The question was: *In your opinion, how have the experiences in PDP led to changes for you as a person and as a teacher? Have the changes you experienced been positive? In what ways has being a part of seeds module been an agent for positive changes?*

Question 2 addressed the theme of implementation. The question was: *In what ways have you infused SEEDs [notably diverse approaches to sustainability education and environmental learning]'s into your planning and practice as a teacher these past few months [for example in your practicum]?*

Question 3 addressed students' perceptions of sustainability education and environmental learning. The question was: *How have your perceptions changed over the past 12 months with regards to your understanding of sustainability education and*

*environmental learning? On the basis of what evidence or experiences do you base your view?*

Lastly, question 4 asked students about their future goals. The question was: *What are your highest priority personal, and professional goals at this time? How have these goals been shaped by your experience in the SEEDs module?*

The Matrix process generates individual interview reports which are created by the students as they act as interviewers with their colleagues. Thus, students are each assigned one of the four questions. Their role is then to ask their assigned question to 3 other colleagues. They are also asked to respond personally to their assigned question. In turn, each recorder/reporter will be interviewed by colleagues who have been assigned one of the other questions. In the entire matrix process every participant will ask his/her assigned question to three colleagues and record the responses on a provided sheet. In turn, every reporter will be interviewed by colleagues who will ask that they respond to the other questions. After everyone has had a turn being interviewed and acting as an interviewer/recorder, the group normally splits into four groups, one group for each assigned question, and summarizes and synthesizes the responses to the questions. The process thus generates both detailed interview results and group summaries for each of the four questions. For the purposes of this report emphasis has been placed on a detailed qualitative analysis of the individual report forms.

The approach to analysis of the written reports was based on qualitative coding as described by Saldana (2012) in which the attempt is made to identify recurrent patterns, themes or concepts in the data while not relying solely on the frequency of occurrence and also attending to ideas or statements that are unique or outliers from the norm. The results of the qualitative analysis of responses to each of the four questions are presented in the following sections. The number of interview records used in the analysis may differ slightly for each question.

## **Question 1: Transformation**

*In your opinion, how have the experiences in PDP led to changes for you as a person and as a teacher? Have the changes you experienced been positive? In what ways has being a part of seeds module been an agent for positive changes?*

### **Responses to Question 1**

The question is a complex of several sub-questions so the analysis can be structured around those sub-questions, beginning with whether the changes experienced were seen by the participants in SEEDs as being positive, and, if so, what was the nature of the changes.

All of the respondents saw the changes that they experienced as being generally positive. Many of the interview recorders noted that their interviewees expressed strongly positive feelings, as denoted in the written reports by bold letters, capitals, or exclamation marks. In regard to the nature of changes experienced, a significant theme was change in self-confidence or maturity. This perception can be seen in the following examples.

*I feel more prepared and confident moving into my career.*

*Personally grown as an individual – independence.*

Another participant reported that she had been prompted to phase out of “*young adulthood and entered a more mature state*”.

Some participants reported changes in attitude. “*Personally I have become less cynical. My ability and desire to see the best potential in people has changed. People get more chances. See the potential in different lights.*” Still others reported changes in perspective. The SEEDs experience made this participant develop, “*awareness that not everyone has an appreciation for nature...broadened my worldview.*” Some reported changes that were more basic. “*Made me open to new perspectives – went camping for the first time!*”

Some of the changes reported concerned concepts about the environment, environmental issues, and personal environmental behaviours. “*Made me more*

*environmentally aware in my life philosophy – – role model.”* I have “*become more aware of what's going on with environment and practicing more sustainable lifestyle choices.*” Another participant noted that she has learned and become more aware of environmental issues and how to take action with them.

While there were very few negative notes to be found in the general chorus of positive comments, a few of the participants did offer some observations that indicated a few downside elements of the generally positive experience. For example, one person commented, “*Reflective capacity has increased even if it was forced, very intense.*” The intensity of the program, while being seen as a strength was also understood to have some possibly negative side effects: “*Lost social life – – intense program*” while some noted specific areas that might have been strengthened or could be seen as weaknesses: “*...lack of training for learning disabled students.*”

Some participants reported that as a result of the SEEDs experience their views of teaching and teachers had changed significantly. My “*Ideas of what a teacher is has changed. [I have an] Appreciation for relationships... Classroom management...Transparency – let students know who I am ...willing to say I don't know.*” Another made an extensive comment on how her view of herself as a teacher had shifted.

*I have a better sense of what kind of teacher I want to be and what my values are [credo]. I better understand the purpose of education and I've reflected greatly on my own experience as a student. Balancing being a teacher and student makes you realize difficulties of both roles.*

Another participant extended this theme. “*I am by far a better teacher than I was at the beginning of the year --most of these learning opportunities came during the practicum experience.*” It is important here to note the reference to the role played in this change by the extensive practicum component of the overall SEEDs experience (EDUC 401 and 405). Some interviewees were quite terse in their description of their changes in perception of schools and schooling: The SEEDs experience, “*Challenged the idea of what a classroom looks like.*”

Some participants reported changes in their professional teaching skills and knowledge. Included here were gains in professional vocabulary and access to new

terminology such as, *“How to label the stages that I knew existed but had not formally identified--formative – summative--scaffolding – modeling”*. Others remarked that the SEEDs experience had, *“provided us with the tools and direction to bring our experience and knowledge to our practice”* and that, *“Experiential learning and place-based learning have an impact on how children learn...also a knowledge of children's needs and strengths to make learning more personal.”* Mentioned as being particularly powerful were community-building activities and experiential and place-based learning experiences as modeled in SEEDs. *“Trips such as the Art walk, the Aquarium, Haida Gwaii and the outdoor school have all made a positive impact in my life. They have shown me how beneficial experiential learning is, and how I want to show my students how wonderful it can be for them as well.”*

In general, interview participants made more comments in reply to Question One about the personal and professional aspects of the changes that they experienced during the SEEDs program than they did about changes in their perceptions of or knowledge about the environment and sustainability, but these topics were not absent from the interviews. A number of participants noted that they had become more aware of environmental issues and had begun to practice making sustainable lifestyle choices. A number of people indicated that they appreciated the importance of acting as role models in their environmental behaviours both for their peers and for students. In regard to changes to ideas about the nature of environmental education or education for sustainability, there were few specific comments although some remarked that they now appreciated that EE could be implemented across the curriculum and should be seen as a general approach rather than a specific subject: *“I better understand how to integrate environment into all subjects.”* *“As a person [I have] become more open-minded re the variety of ways of practicing sustainability.”* *“Even in abstract classes like math I'm always thinking about how I could take students outside--be of benefit to their learning in the subject.”*

Another respondent took a very wide spectrum approach to thinking about the nature of EE: *“...experiential learning-- connection between personal experience and the curriculum. EE is about **our** experience at any given moment.”*

Some participants remarked that they had encountered some obstacles to actually trying out experiential education approaches during their practica but others were optimistic that change can be made from within the system. *“Professionally I no longer feel like open resistance is as effective to make change but it can be done within the system.”*

A very recurrent theme within the interviews for Question One was the importance of the Haida Gwaii experience in the overall design of the SEEDs program. As described elsewhere in this thesis, the Haida Gwaii field experience was a required part of the overall EDUC 404 semester for SEEDs students and was offered under the course rubric of EDUC 452: Environmental Education. Students interviewed repeatedly noted this experience as being valuable in that it provided a direct and extended example of how the teaching and learning concepts of the SEEDs program could be applied while also creating a new social dynamic for the community of students. *“Haida Gwaii was a huge part of the equation.” “Haida Gwaii-- incredible experience.”* For some students the Haida Gwaii experience was their first major trip away from home and immersed them in an entirely new social and physical context. *“Haida Gwaii-- away from home growing more self-reliant.”*

As has been described elsewhere the SEEDs program was designed as a cohort experience in which a group of pre-service student teachers would progress through their professional year together as a learning community. It is therefore not surprising that under the Transformation theme explored in Question One, the cohort/learning community aspect of the program was also frequently mentioned as a significant lever for personal and professional change. As one participant stated, *“Classmates with varied backgrounds pushed my thinking.”* This idea recurs in a slightly different way in the following comment: *“As a person needing a bunch of like-minded people and being immersed has helped cement my beliefs and become a part of me.* Another interviewee described the SEEDs community metaphorically. *“Our module community is a part of my village and that's how children need to feel and the classroom needs to be run!”* For many of the participants the SEEDs community is expected to be the basis for a network of strong professional and personal relationships. *“It has allowed me to experience the power/support of a strong community it has provided me with a network of diverse experiences/perspectives to learn from.”*

In summary, considering the Question that was the focus of this part of the Matrix interviews, it is clear from the comments of the participants that for most, if not all, the SEEDs experience was highly positive and that it generated significant changes in perspectives about teaching and learning experiences and environments. It also gave some participants a greater sense of confidence in their ability to teach to their passions and to make a difference through environmental education by being role models in their personal behaviours and by integrating environmental and sustainability concepts throughout the curriculum. The cohort pattern of organization generated a learning community among the students while the learning experiences that occurred in the campus and field school portions of the program modeled place-based and experiential approaches to learning and teaching.

### **Question 2: Implementation**

*In what ways have you infused SEEDs [notably diverse approaches to sustainability education and environmental learning]'s into your planning and practice as a teacher these past few months [for example in your practicum]?*

### **Responses to Question 2**

Students described a range of experiences in implementing environment-related teaching and learning activities. Some clearly reported that they had numerous opportunities to bring environmental themes and concepts into their practicum classes. Many reported taking students outside the classroom/school frequently in order to engage in a variety of learning experiences. At the same time, some students felt that they had not had as much opportunity to go outside as they would have liked, mainly because of a lack of support from their sponsor teacher/school associate or because of administrative policies or “school culture” in general.

*As one remarked, “I took kids outside to look at space for the space unit but the teacher believed that it was a waste of time” and another reported, “Not as much as I would've liked, I didn't feel the support in the school that I was able to do that. “*

Another participant noted being very much in favour of incorporating EE into regular classes and using the CARE framework as an organizer, and that they loved,

“... the approach but when applied was discouraged by school culture.” This person clarified the remark noting, that he “*implemented [the CARE framework] into planning in multiple subjects but [felt] discouraged by the school.*”

While some students encountered barriers, others felt very free to infuse EE-related activities into their classes. When asked about how much opportunity they felt they had, one student simply stated, “Lots!” Still another student reported, “*1 million ways! I had the opportunity to teach an Environmental Ed course. Took into account most of what we learned in SEEDs.*” Another student stated, “*Result – I take kids outdoors way more even for lessons that are not necessarily environmental. The reason being that I believe this facilitates environmental appreciation.*”

The students described a wide range of teaching/learning activities that they had implemented in their classes during the final (405) practicum. Given the context in which the Matrix was conducted it was not surprising that the students focused on activities related broadly to environmental education. They described a number of activities that were designed to develop student understanding of habitats and local BC plants and animals including topics such as food webs, intertidal life, marine and land mammals, composting and recycling, invasive species, life cycles and seasonal changes, and more global topics such as climate change. In some classrooms the student teachers engaged students in setting up recycling and composting projects, including worm composting. Students also made use of popular simulation games, such as Predator/Prey and Bioaccumulation. The participants also reported applying a number of instructional approaches, with particular reference to place-based, experiential, and hands-on tactics. A typical comment describes the student’s enthusiasm at having tried a particular approach and seen it succeed in practice. “*Place-based learning--I've tried to connect the curriculum to Burnaby. While another remarked, “Infused into the pioneers unit students loved it [s photos of then and now].”* Many of the student responses suggest that their approach to EE during their practica was to infuse it into parts of the regular curriculum. “*In teaching the novel old Man and the Sea I chose to thematically connect it to the environment.*”

Other students reported applying the cycle of experiential learning in their teaching. One described this in a physical education activity: “*Unit plan activities were*

*made as personal and physical as possible. For example arm wrestling and then writing about it.*" This comment reflects the steps in the cycle of learning proposed by Kolb (1984).

Another student commented insightfully about the strategic value of an infused approach, noting, "*Finding clever ways to teach environmental education without being openly resistant to the existing system. Infused throughout the entire curriculum.*"

Some students mentioned making use of the C.A.R.E. framework for environmental education in their teaching during the practicum.

*[I] focused on the C and A of the CARE acronym with kindergarten.*

*Teaching the C of CARE with reference to the human body and the cooperation of body systems; how toxins/pollutants/drugs affect said cooperation."*

*The E of CARE with respect to what you do with your knowledge. For example exothermic reactions can be used for sustainable energy sources [one day]'s or they can make bombs.*

In summary it seemed from the results of the Matrix Interviews related to the question of implementation of EE into classroom teaching during the practicum experience in PDP, that most students had had some opportunities to bring environmental topics into their lessons and unit and that some had numerous opportunities to weave environmental concepts into the learning experiences. However, some students also reported encountering barriers around the attitude of their School Associates or general school policies and "culture". One student remarked about a critical issue for consideration in developing a pre-service teacher education program like SEEDS with a goal of fostering teachers' abilities in environmental education.

*Maybe the School Associates picked for students should be thoughtfully picked and be supportive of environmental education or outdoor learning.*

An impression gained from the interviews around the question of implementation is that most students chose to bring EE into their practicum experiences through use of an infused approach rather than seeking to develop entire curriculum segments or units specifically focused on environmental topics or issues. This approach seemed generally

to have the support of School Associates, although clearly some Associates wanted student teachers to adapt their lessons to the existing classroom routines and the Associate's teaching style. The issue of selection or recruitment of School Associates for a program like SEEDS will be considered in the Recommendations section of this thesis.

### **Question 3: Your Perceptions**

How have your perceptions changed over the past 12 months with regards to your understanding of sustainability education and environmental learning? *On the basis of what evidence or experiences do you base your view?*

### **Responses to Question 3**

This was a two-part question, with part 1 asking how students' perceptions with regard to sustainability and environmental education may have changed during their professional year in the SEEDS module while part 2 asked about the major influences on any perceived changes. There were 24 recorded responses to the question. Of those, 19 students reported that their understanding of EE had changed during the SEEDS program. Of the remainder, some reported that their understanding had not changed in that they felt they had a pretty good understanding of EE prior to SEEDS while others reported that their understanding had broadened or been expanded, while one suggested that it might have been diluted. Some of the comments of those who reported changes are cited below.

*I had a very limited view of what environmental education was prior to this course. The experiences, time in Haida Gwaii, community connections and the people I have met have all opened my eyes to a new way of thinking."*

*Environmental education is not a separate curriculum but can happen across the board. Not about content-- it is about the point of view.*

*I was under the impression that environmental learning referred only to sustainability education. The aspects of community man-made environments – were not included in my previous definition. Also the role of awareness and sensitivities, as prerequisites to effective sustainability education were not something I have thought about before.*

*Before SEEDS: [I] Started with the problem [for example what are the negative effects of human activity?]. After SEEDS: [I] Start with appreciation for the environment as in the CARE system. Students won't remember if they don't CARE first.*

However, some students were less certain about whether or how their perspective on EE had changed.

*Yes my definition of environmental education has been broadened and therefore diluted. For example to say that "everything" is environmental education is "b--- s----t".*

*Before SEEDS: Strong beliefs in sustainability; After SEEDS: Hasn't changed a whole lot."*

*My sustainability education views have not changed but I have more tools – different ways it can be done.*

Some students reported feeling more optimistic about the potential of bringing EE into the school curriculum. *"I have seen how easy it can be to implement environmental education into the curriculum." "Environmental education is a lot easier than I thought it would be." "The CARE model has been very helpful and a big reason that I used environmental education. I've been surprised at the opportunities to take kids outside and for hands-on place-based learning."*

On the other hand a student expressed a less optimistic view: *"I have learned that EE is easier said than done. We are going against the grain."* Another student was generally optimistic but noted particular challenges in some areas of the school curriculum.

*You can do thematic units that are based around our environmental concept [recycling]. It is simple to have a recycling program in classrooms. Math is tricky to infuse with environmental education.*

In regard to the important influences on their thinking from within the SEEDS program and during their professional year, many students referred specifically to their 404/452 experience on Haida Gwaii.

*I found out that it [EE] had to do with more than that about the community and how to make students more included in what is going on in their communities and in the world. These changes are based on the Haida Gwaii experience and experiential learning workshops.”*

*Shaping experiences such as the practicum, Haida Gwaii, and finding like-minded people and a rich resource base were all influences.*

As important as the Haida Gwaii field school experience (Education 452) was for many students, there were also references to other program components (at times incorporated into the field school) that were significant levers for change in their thinking about EE and sustainability. Included was the important role played by the SEEDS cohort community-- their colleagues during the professional year.

*One thing that I could say changed is perception of delivery methods – such as ways to incorporate environmental education in traditional environmental courses [for example: social studies].*

*Everything I learned was modeled. For example in the trip to the Seymour watershed North Vancouver outdoor school, walks around the campus, Haida Gwaii.*

*My views were shaped by community mapping in Haida Gwaii, Place-based learning, and community building.*

*Shaping experiences such as the practicum, Haida Gwaii, and finding like-minded people and a rich resource base were all influences.*

Students often referred to the absolute importance of first hand experiences in the environment and the requirement for such experiences in the development of an appreciation for the environment and the motivation to act to protect or conserve it.

*Also the role of awareness and sensitivities, as prerequisites to effective sustainability education were not something I have thought about before.*

*Anything that we did that was place-based changed my view... When you are out there it really addresses the A and R in CARE.*

*Sustainability can look different to each person. Haida Gwaii; power of experiences and place-based learning creates an appreciation for our environment and as a result a desire to preserve it.*

Several students also stated that they now saw EE as being a much larger part of the curriculum than a single subject, especially just being part of science: *“Environmental learning is cross curricular and extends beyond the science classroom.”*

*I came in thinking environmental education would be focused around sustainability in regards to environmental damage that we are causing [’s for example global warming depleting the ozone layer etc.]. I found out that it had to do with more than that--about the community and how to make students more included in what is going on in their communities and in the world.*

*C.A.R.E. --A framework to talk about everything. Not just the earth environment, but rather school environments and community environments.*

In summary, most students referred to changes in their thinking about the nature of environmental education and in the majority of cases, the direction of the change was to see EE as being much broader in scope, more multi- or interdisciplinary and holistic in nature rather than being in the province of a single subject, such as science or social studies. The students clearly attest to the power of direct experiences during the no-campus and field-based portions of the SEEDS program and they also note the importance of modeling as an instructional strategy. The impact of the Haida Gwaii field school, an extended 2-week period of intense work in a very beautiful and ecologically unique setting, was also evident throughout the student commentaries.

#### **Question 4: Future Goals**

*What are your highest priority personal, and professional goals at this time? How have these goals been shaped by your experience in the SEEDs module?*

#### **Responses to Question 4**

This question was really a three-part question: what were a student’s priority PERSONAL goals, what were their priority PROFESSIONAL goals, and how have these goals been shaped by the SEEDS module during the professional year. The responses reflect a great deal about the reality of life for a novice teacher freshly graduated (or about to graduate) from a one-year pre-service teacher education program. For

example, the interview matrix results clearly reveal a concern—a priority concern, with obtaining a teaching job. However, students indicated that they would not only like to get a job, but they hope to get jobs with particular attributes.

*In a career that they love.*

*In a district that they would like to work in.*

*Doing professional development in environmental education.*

*[Working] in an environmental school to be able to put things into practice.*

*[To] be able to set up their own classroom and put what they've learned in their practicum to use and make it better!*

*Where they can incorporate their views into the classroom and where they will be happy.*

As might be expected, there are some practical dimensions associated with the goal of getting a job: to find financial stability, to get a full-time contract, and to pay off tuition debt—all pretty common concerns of recent university graduates. At the same time, the students also had some high-level career or professional aspirations, as described below.

*[To be] the best teacher I can be*

*To be able to help learners reach their potentials and life*

*To be adaptable so that I can reach the individual needs of each student*

*To learn from others who have had success*

*To be a great role model*

*To teach not just academics but how to be great citizens of the world*

*[To] Educate others through role modeling*

*[I] want to work in an environmental school to be able to put things into practice.*

*Some stated quite specific goals.*

*[I] Really want to teach chemistry 11 and 12 and science 10 – – it's fun!*

*Find a job/work for the North Vancouver school Board. They have an environmental outdoor philosophy in the district mandate.*

*[To be an] Outdoor education teacher in a program like TREK*

To apply to get a teaching on a call position – highest priority is Vancouver

Many of the professional goals stated by SEEDS students concerned their goals in regard to the quality of educational experiences for their future students.

*....To teach not just academics but how to be great citizens of the world.*

*Giving students power to learn how to be great citizens able to change and navigate their world.*

*To teach human decency*

*To raise the level of awareness in the educational system about their personal impacts and the interconnectivity of our world, environment, people, places, and community.*

A number of the statements about professional goals reflected the students' desires to apply the knowledge and skills they had experienced in the SEEDS program to their own practice.

*Additionally I would like to be able to use the skills I have learned in SEEDS into my school's community.*

*[I] Want to work in an environmental school to be able to put things into practice.*

*Applying experience learned in SEEDS within my teaching practice.*

*Some students also outlined specific directions for their future professional development.*

*....learn more about children with disabilities – diverse learners students on individual education plans etc.*

*To use film more so than text in communication about environmental education.*

*Would like to try to integrate more environmental education into English.*

While the students expressed professional goals they also described a number of personal goals: some very global and others more specific. For example, the following statement is broad and ambitious or idealistic.

*To live work and function in a productive sustainable fashion, raising my children to be great citizens able to navigate our ever-changing world. The environment is enormous in this quest.*

*[To be] more environmentally responsible-- better recycling practices for example-- the simple things – educating others through role modeling.*

*...Finding an arena and life where I can influence community.*

While these statements have a clear orientation towards environmental actions at a personal level, other statements were very focused on the quality of personal life.

*Taking time for self and interests – finding balance in life*

*Always just be happy with life.*

*To get organized and get clarity about spiritual, mental, and emotions.*

A number of comments reflected a desire to re-adjust following the intensity of the one-year experience in SEEDS, a theme that also appeared in some of the comments in response to the first of the four matrix questions.

*To get my healthy life back on track.*

*Lead a happy balanced life; travel, get back to things we've put on hold.*

*Get my life back – try and live out what I believe is a balanced lifestyle – being outdoors more.*

It would appear that some students found a certain irony in the fact that the intensity of the SEEDS cohort experience actually restricted their involvement with outdoor recreation, family, and perhaps affected their general wellness in a holistic sense.

*As might be expected, some personal goals overlapped with professional goals.*

*Getting a Masters.*

*To get more involved in the community-- connect to others.*

*Travel eco-friendly --backpacking various countries but rural parts.*

*Create a website for teachers about environmental education.*

The question of how the students' personal and professional goals were shaped or informed by the SEEDS program experience seemed in some cases to be addressed indirectly in some of the responses about personal and professional goals. For example, a student's response in regard to professional goals states:

*[I want to provide] outdoor and experiential learning in classes;*

While another claims:

*[I would] really like to incorporate community into classrooms.*

Given the emphasis placed during SEEDs on experiential learning and community it is not surprising that these emphases are to be found in student statements about their professional goals. Some aspects of the curriculum philosophy apparent both explicitly and implicitly in the SEEDS experience are reflected in the following professional goal statement.

*To teach through our passions--broadening themes used in curriculum holistically instead of discrete curriculum.*

Similar influences from SEEDs seem to be apparent in personal goal statements as well.

*[I want to] show the students a future they want to be part of.*

However, students did make some explicit comments about how the SEEDS experience had affected their personal and professional goals and priorities. Some of these statements are directed to how SEEDS affected their ideas and concepts about teaching, learning, and schooling/curriculum.

[I was] *Exposed to many different styles of teaching and learning.*

[SEEDs] *Incorporat[ed] cross-curricular activities into outdoor activities.*

[I] *really like to incorporate community into classrooms and I feel SEEDS has contributed to this.*

[SEEDs] *Reinforced ideas of diversity and togetherness:*

*In classroom practice and talk*

*In group focus learnings as SEEDs members.*

Students also reported on the power of being part of a learning community during the SEEDs cohort experience.

[I was] *taught the importance of being a part of a professional community and the power of collaboration.*

*Exposed to great collaboration*

*Exposure to adventure cultures and different ways of living.*

*Collaborating with peers.*

Some students remarked on more general personal influences from the SEEDS experience.

*Provided me with a lot of confidence and clarity on moving forward to my career.*

*Justified a lot of my beliefs and values on education.*

*I am much more cognizant that the environment affects well-being – not just mine but everyone.*

*Should be self-motivated but operate to better your community and the world around you.*

As can be seen, the theme of collaboration and community is an important strand running through personal and professional goals and also was a powerful influence in the SEEDs experience. The overall impression taken from the responses to this fourth matrix question is one of a group of young people who have completed a year of pre-

service teacher education and are now eager to move into active professional practice. Further, given the change of a teaching position, many seem excited at the prospect of putting many of the themes of the SEEDs program into practice in their own classrooms. Their responses here, and in regard to other elements of the Matrix, suggests the power of modeling in a learning environment or experience: students appreciate hearing concepts and ideas, but they deeply appreciate seeing those ideas and concepts applied to their own professional learning experiences. In SEEDs, the role of teacher resides not just with faculty or faculty associates but also with their peers and colleagues in a community of practice, a cohort that works together (and at times lives in residence or camps outdoors together) for a year. It is interesting that the students do not speak of the influence of specific courses or requirements as much as they refer to the overall quality of the SEEDs program experience. Clearly, there are some high point learning experiences—the Haida Gwaii field school during the 404 middle semester of the professional year is mentioned repeatedly. There are also references to the practicum experience, mainly in a positive way, although with some mention of the challenges of attempting, as very novice professionals-in-training, to introduce teaching practices and curriculum concepts that challenge the school or classroom cultures that were found in some practicum placements.

### ***General Summary of the Matrix Results***

The dominant impression to be taken away from this review of the responses to the four questions activated through the Interview Matrix process is one of a group of pre-service student teachers who entered the program with interests in the environment and sustainability, and who have seen that interest focused into both personal and professional goals and have developed new skills and knowledge. Many of the comments made in response to the Matrix questions appear to link to the SEEDS program goals and also reference the elements of the PLACES constructs. These young teachers are very much filled with a sense of possibility, of making a difference to students through effective teaching and by modeling their own commitments to the environment in their practices and life style choices. Many seem to be optimistic that effective environmental education is possible within the structures of the regular K-12 education system without a need for radical reform. They seem committed to working for

change from within the system and they believe that concepts about the environment and sustainability can be infused into the on-going curriculum. That said, some would clearly love nothing more than to have a chance to work in existing environmental schools or school-based environmental programs. However, for most of these young people, the first goal is to find a position within the system so that they have a point from which they can exercise their ideas, practice their skills, and attempt to make their visions of effective environmental education come to life in school classrooms.

## **Preferred and Perceived Learning Environment**

During the 12 month duration of the SEEDs program the pre-service teachers in this module were asked to complete the PLACES questionnaire, in both its preferred and actual versions, in both 401/2 and 404/452. In the 405 semester they were asked to fill out only the Preferred-PLACES. Again, the *Place-based Learning and Constructivist Environment Survey* (PLACES) was developed to “[measure] student perceptions of environmental education in place-based educational settings” (Zandvliet, 2012, p. 126). The rationale for its use during the SEEDs module was to identify the pre-service teachers’ preferred psychosocial learning environment attributes and also when possible to gather their perceptions of the SEEDs psychosocial learning environment as they were actually experiencing it. The following sections report on the results from the PLACES survey while also offering some interpretation of the data.

### ***Education 401/2***

The PLACES-Preferred instrument was administered at the start of the program in early January 2011 and at the end in late March the PLACES-Actual instrument was administered. Of the 32 students in the course, all 32 completed the Preferred-PLACES questionnaire. As described in Chapters 2 and 3, each version of the PLACES survey has 8 scales with 5 statements for each. Students responded to each statement on a 5-point Likert type scale with the positive response being scored 5 (Always), the middle response being scored 3 (Sometimes), and the least positive response being scored 1 (Almost never). The mean for each scale was calculated for each individual, and then the Mean for each scale for the total sampled group was also calculated. Tables 15 and

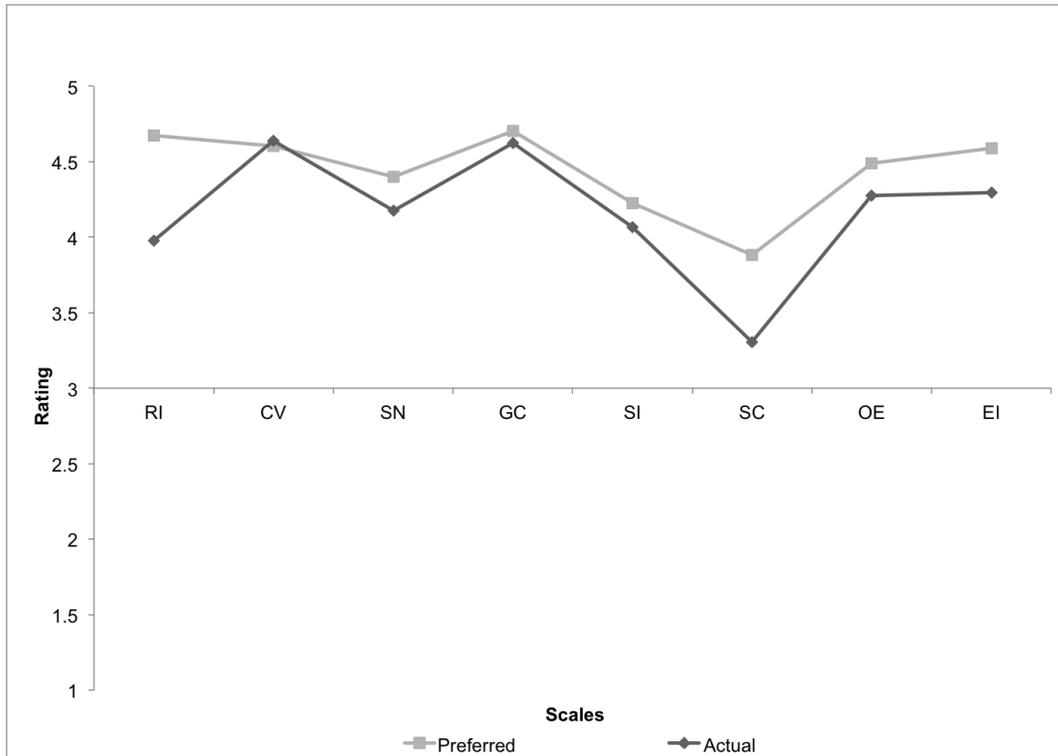
16 present these data, and Figure 6 shows the means for both the Preferred- and Actual-PLACES results charted together. The means for the 8 scales in the Actual-PLACES survey were calculated in the same way as for the Preferred Survey with the difference that on the Actual instrument: 4 or higher indicates the students are very satisfied with the learning environment; 3 – 4 is good; and below 3 indicates that the learning environment was rated as unsatisfactory.

**Table 15. Mean Scale Rankings of Preferred – and Actual-PLACES in Education 401/2**

|                           | Preferred |          | Actual |          |
|---------------------------|-----------|----------|--------|----------|
| Scale                     | Mean      | $\sigma$ | Mean   | $\sigma$ |
| Relevance/Integration     | 4.68      | 0.36     | 3.97   | 0.53     |
| Critical Voice            | 4.61      | 0.40     | 4.64   | 0.35     |
| Student Negotiation       | 4.40      | 0.68     | 4.17   | 0.68     |
| Group Cohesion            | 4.71      | 0.42     | 4.62   | 0.37     |
| Student Involvement       | 4.22      | 0.58     | 4.07   | 0.52     |
| Shared Control            | 3.88      | 0.64     | 3.31   | 0.86     |
| Open-Endedness            | 4.49      | 0.45     | 4.27   | 0.53     |
| Environmental Interaction | 4.59      | 0.43     | 4.29   | 0.48     |

Due to the small sample size no tests of statistical significance are reported here. The questionnaire administered here, PLACES, has been tested for validity and reliability in post secondary settings (Zandvliet, 2012) as described in Chapter 3. Interpreting the survey responses from the Actual-PLACES overall it appears the place-based and environmental education learning environment of Education 401/2 was seen to be positive, with 6 of the 8 scales measuring above 4.0 and 2 of the 8 scales between 3.0 – 4.0. The highest scored scales were those of Critical Voice (4.64) and Group Cohesion (4.62), and the lowest scale was Shared Control (3.31). When comparing this with the Preferred-PLACES for 401/2 (see Table 15 & Figure 6) one can see how the students' perceptions of the actual learning environment compared to the attributes of their preferred learning environment. Critical Voice, Group Cohesion and Student Involvement can be considered close matches, as were Environmental Interaction,

Student Negotiation and Open Endedness. The two scales that appear to have considerable gaps between their preferred and actual responses are Relevance/Integration and Shared Control.



**Figure 6. Graph of Means Scale Rankings of Preferred- and Actual-PLACES Administered in Education 401/2**

### **Education 404/452**

The results of the Actual-PLACES administered to the SEEDs students at the start of the course EDUC 452 Haida Gwaii (N=27) is found in Table 16. It appears the overall impression of the actual learning environment in EDUC 452 Haida Gwaii was very positive with 7 of the 8 scales scoring above 4.0, and 1 of 8 scoring between 3-4. The highest ranked scales were Environmental Interaction (4.68), Group Cohesion (4.68) and Critical Voice (4.65). The lowest ranked scale was Shared Control (3.77). From previous PLACES research, Shared Control is commonly the lowest ranked scale of the 8 scales. A possible reason for why this factor was scored lower in the Actual-PLACES than in the Preferred-PLACES in Education 401/2 is that the students may

have disagreed with the value of some of the course activities/lessons, and/or felt that they were not given sufficient opportunities to direct their learning.

Analysing the mean scale rankings of both the Preferred- and Actual-PLACES (Table 16), the results are indicative of a near perfect match between the preferred and actual learning environments. The one surprising note is that it appears the actual learning environment was higher than the preferred, inferring that there was more environmental interaction than the students had wanted. While the gap between the two is not significant, this very small gap could be indicative that this course had spent a majority of its time in the community and in the outdoors.

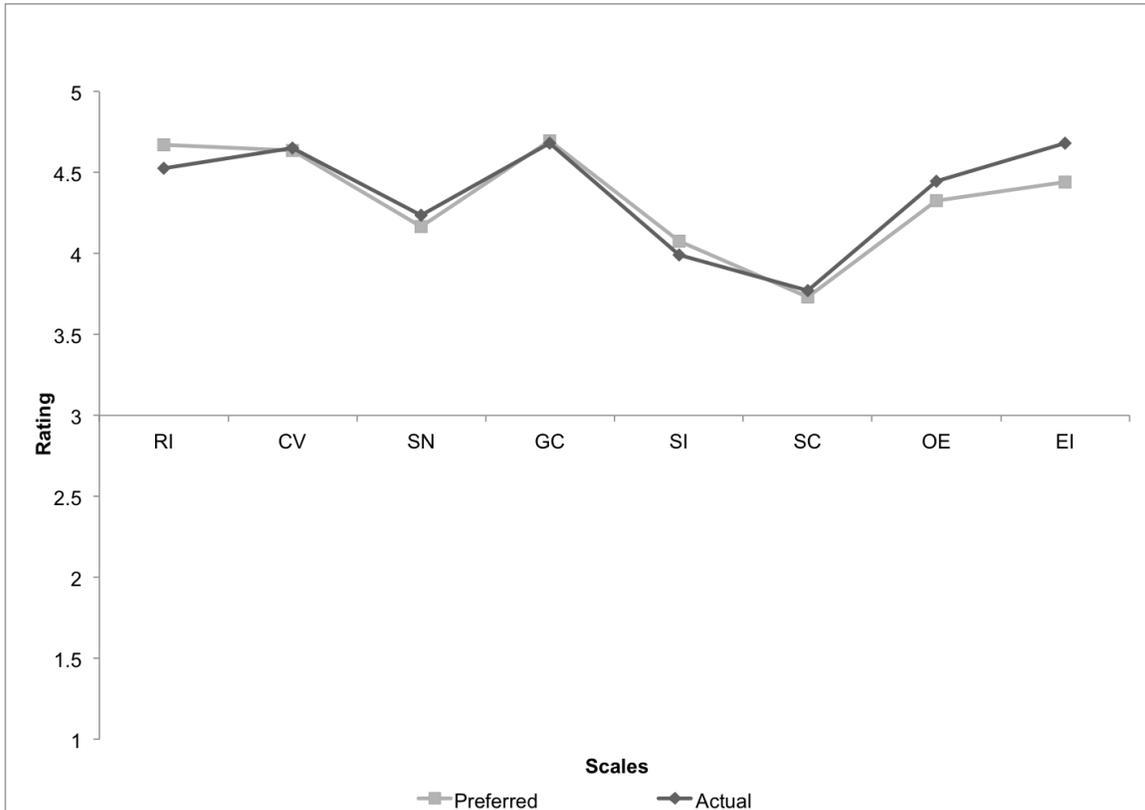
**Table 16. Mean Scale Rankings of Preferred – and Actual-PLACES in EDUC 452 During the Semester of Education 404**

|                           | Preferred |          | Actual |          |
|---------------------------|-----------|----------|--------|----------|
| Scale                     | Mean      | $\sigma$ | Mean   | $\sigma$ |
| Relevance/Integration     | 4.67      | 0.41     | 4.53   | 0.53     |
| Critical Voice            | 4.63      | 0.47     | 4.65   | 0.40     |
| Student Negotiation       | 4.16      | 0.71     | 4.24   | 0.60     |
| Group Cohesion            | 4.70      | 0.43     | 4.68   | 0.32     |
| Student Involvement       | 4.07      | 0.55     | 4.00   | 0.56     |
| Shared Control            | 3.73      | 0.60     | 3.77   | 0.63     |
| Open-Endedness            | 4.32      | 0.51     | 4.44   | 0.54     |
| Environmental Interaction | 4.44      | 0.58     | 4.68   | 0.40     |

### **Education 405, Education 401/2 & Education 404/452**

While a comparison between actual and preferred learning environments in Education 405 was not possible because the students were in different schools doing their practicum, they were still administered the Preferred-PLACES at the end of SEEDs/PDP in order to investigate if their preferred learning environment changed from the beginning, in the middle and/or at the end of the program (Table 17 and Figure 7).

Again, while no statistical tests of significance were conducted on the data due to the small sample size, there are a few general comments that can be made of these results, one interesting observation was that there was a general reduction in the rating scores on the 8 scales from the beginning, middle and to the end. The most dramatic of these was Student Negotiation that had a change of -0.47.



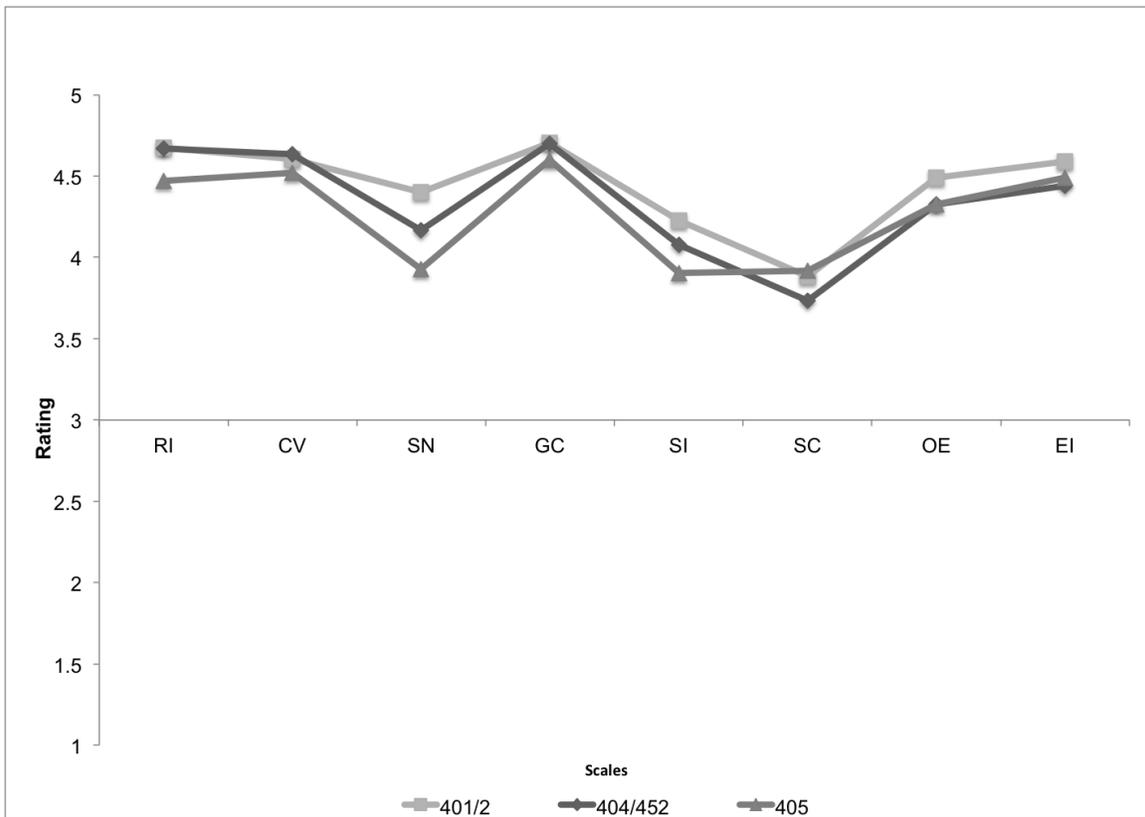
**Figure 7.** *Graph of Preferred- and Actual-PLACES Mean Scale Rankings from EDUC 452 during Education 404 Semester*

**Table 17. Mean Scale Rankings from Preferred – PLACES in all Three Semesters.**

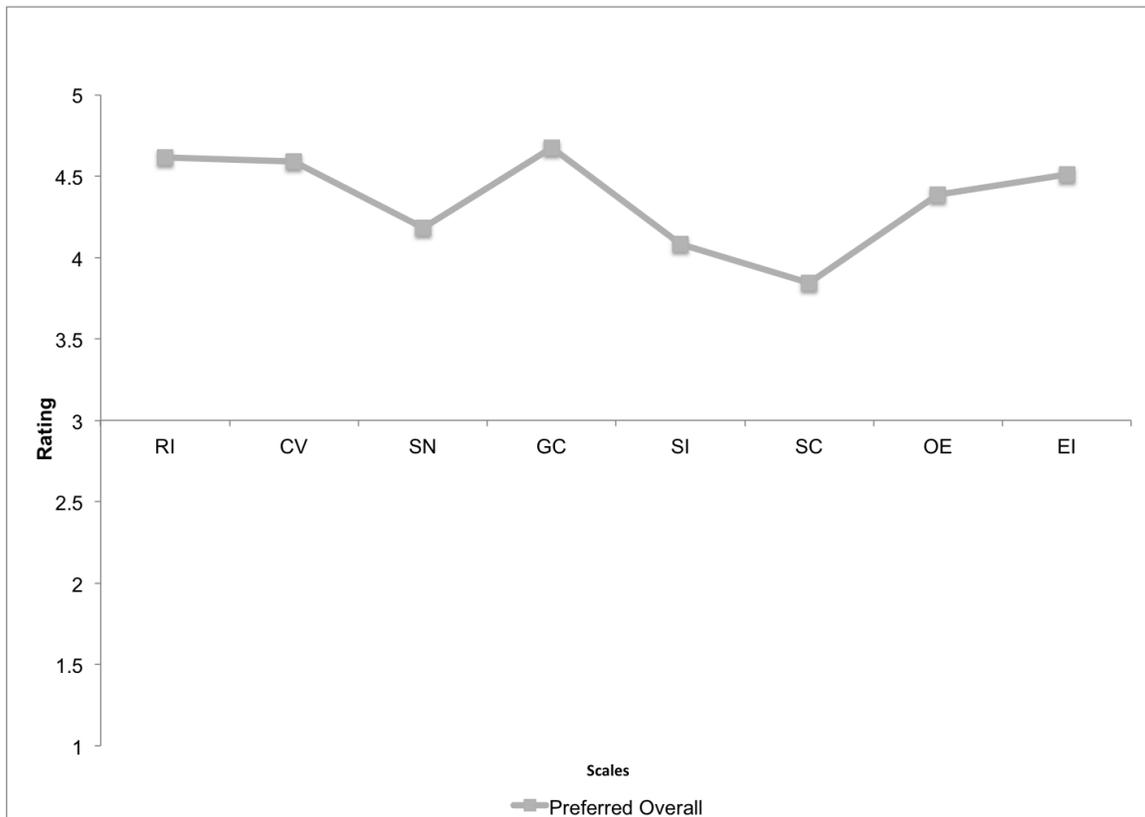
|                           | 401/452 |          | 452  |          | 405  |          |
|---------------------------|---------|----------|------|----------|------|----------|
| Scale                     | Mean    | $\sigma$ | Mean | $\sigma$ | Mean | $\sigma$ |
| Relevance/Integration     | 4.68    | 0.36     | 4.67 | 0.41     | 4.47 | 0.36     |
| Critical Voice            | 4.61    | 0.40     | 4.63 | 0.47     | 4.52 | 0.40     |
| Student Negotiation       | 4.40    | 0.68     | 4.16 | 0.71     | 3.93 | 0.68     |
| Group Cohesion            | 4.71    | 0.42     | 4.70 | 0.43     | 4.60 | 0.42     |
| Student Involvement       | 4.22    | 0.58     | 4.07 | 0.55     | 3.90 | 0.58     |
| Shared Control            | 3.88    | 0.64     | 3.73 | 0.60     | 3.92 | 0.64     |
| Open-Endedness            | 4.49    | 0.45     | 4.32 | 0.51     | 4.33 | 0.45     |
| Environmental Interaction | 4.59    | 0.43     | 4.44 | 0.58     | 4.49 | 0.43     |

**Table 18. Overall Mean Scale Rankings of Preferred – PLACES of SEEDs Teacher Candidates**

| Scale                     | Mean | $\sigma$ |
|---------------------------|------|----------|
| Relevance/Integration     | 4.61 | 0.43     |
| Critical Voice            | 4.59 | 0.46     |
| Student Negotiation       | 4.18 | 0.73     |
| Group Cohesion            | 4.67 | 0.47     |
| Student Involvement       | 4.08 | 0.55     |
| Shared Control            | 3.84 | 0.59     |
| Open-Endedness            | 4.39 | 0.49     |
| Environmental Interaction | 4.59 | 0.50     |



**Figure 8.** *Graph of Preferred-PLACES Mean Scale Rankings from Education 401/2, 404/452 and 405*



**Figure 9. Graph of Overall Mean Scale Rankings of Preferred-PLACES from the SEEDs teacher candidates.**

When the means of all three Preferred-PLACES are tabulated, the overall preferred learning environment of students in a place-based and environmental education setting is one to which students apparently set high expectations for (Table 18 and Figure 9) when compared to classroom-based course (see Zandvliet, 2012). Relevance/Integration, Critical Voice, Group Cohesion and Environmental Interaction are scored slightly higher than Student Negotiation, Student Involvement and Open Endedness. The lowest scored was Shared Control.

### **Conclusions from the PLACES results**

Overall when comparing the SEEDs student rankings of the 8 scales in the Preferred-PLACES and Actual-PLACES in Education 401/2 and in Education 404/452 semester the results indicate that the actual learning environments in both courses met the pre-service teachers' preferred place-based learning environment. Having said that

there was some discrepancy with the scales Relevance/Integration and Environmental Interaction rankings in the Preferred- and Actual-PLACES results from Education 401/2. Reasons for this may have been that SEEDs pre-service teachers were a bit disillusioned that Education 401/2 did not spend more time interacting with the community and the outdoor environment.

With regards to the Preferred-PLACES that were administered three times during the SEEDs 12 month module at the start of Education 401/2 and EDUC 452 in the Education 404 semester, and at the end of Education 405, there was no statistically significant change over the course of the 12 months. That being said, observationally there was a general trend of the scales lowering in means over the 12 months. A possible reason for this is that their ideal for a preferred learning environment changed slightly over the course of the program as they tried and experimented using similar practices in during their practicum.

## **General Summary**

The dominant impression to be taken away from this review of the responses to the four questions activated through the Interview Matrix process is one of a group of pre-service student teachers who entered the program with interests in the environment and sustainability, and who have seen that interest focused into both personal and professional goals and have developed new skills and knowledge. Many of the comments made in response to the Matrix questions appear to link to the SEEDS program goals and also reference the elements of the PLACES constructs. These young teachers are very much filled with a sense of possibility, of making a difference to students through effective teaching and by modeling their own commitments to the environment in their practices and life style choices. Many seem to be optimistic that effective environmental education is possible within the structures of the regular K-12 education system without a need for radical reform. They seem committed to working for change from within the system and they believe that concepts about the environment and sustainability can be infused into the on-going curriculum. That said, some would clearly love nothing more than to have a chance to work in existing environmental schools or school-based environmental programs. However, for most of these young

people, the first goal is to find a position within the system so that they have a point from which they can exercise their ideas, practice their skills, and attempt to make their visions of effective environmental education come to life in school classrooms.

## **Chapter 9.**

### **Faculty and School Associate Assessment of Student Teachers**

After the teacher candidates had graduated from the 2011 SEEDs program, I contacted 22 former participants to request permission to view their Faculty Associate (FA) and School Associate (SA) final evaluations of their Education 405 practicum. Twenty-two were contacted, as those were the people whose contact information I could find. Of those 22, 19 volunteered their final evaluations to this case-study. Of the original six who were members of the purposive sample, only five volunteered their evaluations. My initial objective in analyzing the final evaluations was to seek possible matches from the evidence about their practices with one or more of the eight scales from PLACES, and one or more of the SEEDs program goals.

After conducting a preliminary review of the FA and SA evaluations it became apparent that the PLACES scales and the SEEDs goals were evident throughout the practicum reports (see Appendix E and F). An immediate explanation for this was that the structure of the evaluation forms directed the FAs and SAs to report on particular aspects of the teacher candidates' abilities when working with classes. Further, the categories in the evaluation forms were in accordance with the general goals of the Professional Development Program. In turn the SEEDs goals also reflect or are congruent with the general PDP goals. For this reason, when coding for the occurrence of PDP goals in the written FA and SA evaluation reports it was not difficult to find considerable alignment between the comments about the practicum experiences of the student teachers and specific PDP goals. It was also quite evident that the student teachers incorporated experiential education approaches in their practices, along with critical thinking, place-based learning experiences and constructivist approaches in their classes.

## School Associate Final Evaluations

The School Associate reports indicated no specific attempts to implement or infuse environmental education by Juno, Carmen, or JP. (Juno and Helvia were both teaching in elementary grades during their final practica while Carmen and JP were in secondary schools). The SA reports however did comment on evidence of environmental learning in the practice of Lance and Helvia.

*Lance has challenged his [science] classes to think critically about issues close to his heart and to home. He has led discussions on the tar sands, the controversial topic of shark fining and global warming. He also had his Science 10 classes write research papers focusing on any ecological issue that they were interested in researching, exposing students to peer reviewed papers, proper writing techniques and critically reviewing data....Lance also incorporated his love for the outdoors in his lessons, often leaving the classroom with his students to have them experience what he was teaching as they learned.*

*Helvia is passionate about the students appreciating the outdoors, and she often took the [elementary] students outdoors where the environment became the learning resource.*

Having only found two references by SAs to environmental learning in the practices of the five purposively sampled student teachers, I was curious to review the 12 SA final evaluation reports which had been voluntarily provided by other students outside the sample group. Of the remaining 12, I found 6 more references in reports by SAs that offer evidence for ecological and cultural awareness in the practices of the student teachers.

*Phillip began his practicum with an interest in sharing what he had learned about the culture of India as he had just returned from a trip to this country. ...His enthusiasm and ability to engage students using photos (computer, LCD projector) he carefully selected, invite student reaction, and resulted in many rich questions and discussions of cultural diversity.... began their social studies unit by asking each student to bring in an artefact from their own culture and then set up share session where the students had the opportunity to share their artefact their peers.*

*Wildlife of BC 11/Fish and Wildlife 12, Margaret worked to develop relevant, meaningful activities and forms of assessment. Margaret designed several types of activities for her students to ensure that*

*learning was occurring on a variety of levels. This included a student-centered case study of marine invertebrates.*

*From the start, Alison had planned on incorporating a Legends aspect to her Language Arts program. As she began teaching the students, it became evident that most students were not at a level in which this unit would be easily implemented. Alison took the time to re-evaluate her planning and change her unit to a reading and writing program that implemented other areas of First Nations Studies that was more at their learning levels.*

*During the course of her practicum, Brenda planned and executed two field trips for the students. The first trip utilized a day of free transit in which the concept of transportation and communities came into play. The second trip was to the Vancouver Space Centre as a fabulous ending to her Space Unit. Brenda was successful in locating an organization that helped provide fund for those schools in need....Brenda also demonstrated considerable initiative by becoming a driving force behind a recycling program and "outdoor school" program*

*Nilsa's socials and science projects have complemented and deepened the student's understanding of food and food systems...The worm bin experiment has been a good challenge for the students on many levels, academic, cognitive and social.*

*In science, to explain the Particle Model of Matter, he had the students go outside in a large open space and the students acted as molecules to represent a solid, a liquid, or a gas.*

*Being a part of the environment module at SFU, Beatrice also found ways to integrate environmental education topics into her curriculum. She fostered interest by teaching about her own passions with her environmental education Language unit, and also across the curriculum with activities in art and Personal Planning.*

School Associate reports also record that Chelsea organized an Owl field trip for a number of other classroom teachers, and started a garden club at the school, while another student teacher created a unit plan to promote awareness of the outdoors, with outdoor art activities. Brian exhibited his passion for sustainability by taking initiative in finding more information about composting and then shared this with his colleagues. Brian also spent 3 days camping with forty-one Grade 7 students.

## Faculty Associate Final Evaluations

Of the 19 FA final evaluations that were provided by the SEEDs students, 15 contained comments referencing EE in the student teachers' practice. Ten of the 15 reports were written by the first SEEDs FA (FA-2) and 9 were written by the second FA (FA-3). Of those 19 FA reports, only 4 belonged to the initial purposeful sample of 6: Carmen, Helvia, Juno and Lance but all four contained inferences to EE practice.

Of the 9 final practicum evaluations written by FA-1 on SEEDs student teachers five reports made references to demonstrated ecological and cultural awareness in the teaching practices of the students. The following passages are taken from the reports written by FA-1.

*In her Credo, Helvia expresses her belief in the idea that learning occurs both within and outside of the classroom, and seeks to create and promote experiential learning for her students.*

*Carmen made plans to [be] more committed to deeper involvement in the Environmental Educators PSA (Provincial Specialists Association).*

*Lance's Credo articulates the importance of learning in authentic situations, pointing to his commitment to provide students with a wide range of learning opportunities within the classroom, and a desire to keep student*

*Further, Karen is very sensitive to issues of diversity in the classroom, and is often able to weave larger themes around identify and social justice into her lesson.*

*Alison has carefully drilled down through her beliefs to get at the core of her practice, creating a philosophy of teaching that places students at the centre of her concern, places values of care and stewardship of both our society and our environment at the forefront...One of the highlights of her practicum was a Social Studies Unit on Indigenous People within Canada.*

*Nilsa's particular interests in environmental education and social justice were woven throughout her lessons, and provided a strong infrastructure on which to hang student comprehension. In particular, Nilsa did an excellent job in creating and implementing a science unit focused on systems, which complemented a Social Studies Unit on sustainability and the carbon footprint of food shipment.*

FA-2 made at least one comment relevant to the SEEDs goal of ecological and cultural awareness in all 10 of her final practicum evaluations of the SEEDs students who were under her supervision.

*Juno hopes her classroom will give students the skills to become great citizens of the world, citizens that genuinely care for other people, creatures, things, and for all the environments around them.*

*Beth plans to integrate her larger community into her classroom by using local authors, encouraging students to make learning connect to their home and history, and using the local community for inspiration.*

*Chelsea...[supervised] students in the school garden...*

*Carla has been committed to promoting environmental sustainability in her classroom, providing opportunities for her students to engage with the environment both inside and outside of the classroom in her choice of activities and resources.*

*Beatrice has been committed to promoting environmental sustainability in her classroom, providing opportunities for her students to engage with the issue in her choice of activities and resources.*

*Darlene has been committed to promoting environmental sustainability in her classroom, providing opportunities for her students to engage with the environment both inside and outside of the classroom in her choice of activities and resources....many of Danielle's lessons had a connection to environmental sustainability, in art, reading, science, and social studies.*

*Ricky is passionate and her classes encourage students to question their own role in building an environmentally sustainable future.*

*Phillip also brought his genuine self to the classroom, sharing stories about his new baby, showing pictures of his trip to India, modeling his passion for the outdoor experiences and involving students in his interest about the Occupy Vancouver issue in the media....The student's in Phillip's class seems to genuinely love to be there, engaging fully in outdoor activities, presentations and games.*

*I learned that Brian is dedicated to outdoor experiences and hopes to embed them in his class routine as direct experience foundations for environmental education.*

Interviews with both the FAs following the conclusion of the module in December 2011, found that each had different interpretations about the success of the module to

develop the motivation and capabilities in pre-service teachers to act as key change agents in transforming education and society to create a more sustainable future.

FA-1 had been with the SEEDs module since its beginning in January 2011 and had a stronger connection with the students. In addition, FA-1' defined her areas of expertise, as fine arts and indigenous education. At the start of the module, she confessed her uncertainty about why she had been selected to be an FA in this EE module although that uncertainty may have only been present because at the time she was a brand new appointee to the PDP. Over time she became more confident in EE: so much so that she became involved with the Environmental Education PSA of BC. FA-1 was quite positive in her comments on the SEEDs module. She believed that she saw evidence of students implementing or infusing environmental education in their classes in the practices of the large majority of the 16 SEEDs teacher candidates whom she supervised during the practicum; and that the program had successfully developed pre-service teachers with the motivation and capabilities to act as key change agents in transforming education and society to create a more sustainable future.

On the other hand, FA-2 was much more critical of the SEEDs program. FA-2 had become involved with the SEEDs module in the third and last semester: Education 405. As has been mentioned earlier, FA-2 came into the SEEDs module with extensive experience in environmental education in BC; having been one of the BC K-12 teachers involved in the development of the Environmental Learning and Experience interdisciplinary curriculum guides and the PLACES survey. The following are some of her comments with regard to expressions of EE in the practica of SEEDs students whom she supervised.

*The majority of expressions of EE in the SEEDs students practice was superficial, like initiating recycling programs and taking the class outside, there was no community/place-based aspect to their practice. That is main point here, what lacked was lack of community interactions.*

*It doesn't matter if 17% of them did show elements of EE in their practice, it was never anything profound or lasting, such as turning regular tag to a Wild BC salmon tag game, there was no real concerted effort, systems thinking or making large societal/environment connections. It did not go from classroom practice to active citizenship.*

*The students that did, it was not because of this SEEDs program, these were values dear to them, and they would have done the same whether they were in the SEEDs module or not.*

FA-2 believed that this was because of the lack of supportive SAs, and in turn because of the lack of attention by the PDP administration to pair SAs with modules that mirror their areas of expertise and interest.

*EE was never modeled for them in the classroom. The majority of the SAs' were not sympathetic to EE, and therefore did not model EE to the SEEDs students, who need this to be shown in practice.*

*In general the people that apply for SAs are often teachers looking for a free block(s) because the teachers who we would like to have as SAs don't want to deal with the added headache and responsibility of taking on student teachers who are ill-prepared to teach in the classroom, both during 401/2 and 405. What we end up with then is SAs who are not the mentors these teachers need, something these students voice to us.*

*The feeling I get from the Dean of the Faculty of Education is that PDP is not a priority nor is it valued. From a recent meeting I had with two other FAs about the issues of bringing in [Aboriginal Education] into the PDP objectives and how to resolve it, we felt that if PDP were to end at SFU the [Faculty of Education] would be ok with it.*

In short, FA-2 argues in the end, that “the system does not facilitate or support the needed connectedness and relatedness of a student’s learning as they move through the educational system, from K-12 through to post-secondary”. FA-2’s proposed solution for this...

*There is a need for institutional agencies/structures within not just teacher education, but also early childhood, K-12 and post-secondary education; and in turn school and social culture as a whole. Teacher education alone will not have that effect. The student teacher needs to pass from one circle to another, where they find mentorship and/or support while they transition to another outer circle (in reference to Greg Cajete’s ecological model for Indigenous Education).*

## General Summary

The School Associate reports indicated no specific attempts to implement or infuse environmental education in three of the 5 purposeful sampled SEEDs students. The SA reports however did comment on evidence of environmental learning in the practice of Lance and Helvia. The 12 remaining SA reports that had been voluntarily provided by SEEDs students were also analyzed. Of those remaining 12, I found 6 more references in reports by SAs that offer evidence for ecological and cultural awareness in the practices of the student teachers. Therefore of the 17 SA assessments of student teachers, 8 reported or commented on the evidence of EE in their student teacher's practice. Examples were, one student organized an Owl field trip for a number of other classroom teachers, and started a garden club at the school; and another student teacher created a unit plan to promote awareness of the outdoors, with outdoor art activities.

Of the 19 FA final evaluations that were provided by the SEEDs students, 15 contained comments referencing EE in the student teachers' practice. Of those 19 FA reports, only 4 belonged to the initial purposeful sample of 6: Carmen, Helvia, Juno and Lance but all four contained inferences to EE practice. Ten of the 15 reports were written by the second SEEDs FA (FA-2) and 9 were written by the third FA (FA-3).

Interviews with both the FAs following the conclusion of the module in December 2011, found that each had different interpretations about the success of the module to develop the motivation and capabilities in pre-service teachers to act as key change agents in transforming education and society to create a more sustainable future. One believed that the program had succeeded in its attempts to initiate the change we want to see in the world, while the other FA believed that the EE implemented by the student teachers was superficial, and not deep enough to bring about change.

## Chapter 10.

### Discussion and Recommendations

The purpose of this study was to describe the implementation of a 12-month Environmental Education module of a teacher education program in the Education faculty of a Canadian public university. In 1998, the UN Commission on Sustainable Development (UN CSD) appealed to UNESCO “to develop guidelines for reorienting teacher training to address sustainability” (UNESCO, 2005a, p. 11). This appeal led to the creation of the UNITWIN/UNESCO Chair on *Reorienting Teacher Education to Address Sustainability*, a post currently held at York University. The basis to this appeal was the belief that “teacher-education institutions serve as key change agents in transforming education and society [to a more sustainable future]” (UNESCO, 2005a, p. 11).

These statements formed an important part of the rationale for this study. Research studies from around the world continue to suggest that the integration of EE and sustainability into teacher education programs is encountering significant obstacles (Beckford, 2008; Lin, 2002; Tilbury, 1992). Teacher education in Canada is a clear example of this issue, with research by Lin (2002) and Beckford (2008) painting a sad picture of the occurrence of EE as one significant component of pre-service teacher education programs. Being aware of these findings regarding the status of EE in teacher education in Canada, and around the world, I worked with colleagues to implement an EE module within the professional (pre-service) teacher education program of SFU’s Faculty of Education. The general objective of the SEEDs module was to develop pre-service teachers with the motivation and capabilities to act as key change agents in transforming education and society to create a more sustainable future. In the process it was hoped I would be able to address several questions about the implementation of EE within the context of pre-service teacher education. This chapter will provide some

general discussion related to EE in teacher education, in addition to its implications for the broader field of teacher education programming.

## **Learning Environment and Environmental Learning**

The first research question was: *What type of learning environments do pre-service teachers who apply to an environmental education-themed module prefer?*

The teacher candidates in the SEEDs module applied and submitted a letter of intent to support their application. This is an important point as these 32 teacher candidates wanted to be part of a module within a teacher education program that had focused their teaching around environment learning. A number of them in their reflection assignments and in the interview matrix mentioned that they had come in with little knowledge of environmental education but thought the module's focus on environmental education "sounded interesting". One student even mentioned she had applied to PDP at SFU because she found out that it had an EE module. Therefore, while students did come from a variety of backgrounds, both personal and academic, they believed it was important for environmental education to be a part of their practice.

Why I bring this up is because from the very outset, as seen in their application letters, early reflections and credo statements, the SEEDs students appear to have values and ideals closely congruent with the underlying curriculum theories represented by PLACES and the ELE curriculum guides. The main elements that make up their preferred learning environment were: respect among the students and between the teacher and the student; feeling comfortable and safe; strong supportive community feeling; where students have a voice and they have defined roles in maintaining order.

*Our module values group cohesion, which [the FA] demonstrated through his [learning environment research] results presented to us on Friday. Also, being in a community is more fun instead of doing things individually, as you feel included and safe, within strong communities.*

*Community building is a key component to teaching effectively in a classroom, and is interconnected to classroom management*

These comments by the teacher candidates on their ideal, preferred learning environment corroborate the findings from the rankings of the eight scales of the PLACES. It is my interpretation that the eight scales of PLACES are all represented the comments by the students in their assignments on what they would like their classroom environment to be like. Just looking at how high they ranked the eight scales in PLACES when it was administered to them the second week of the SEEDs module, acknowledges how closely matched the teacher candidates were with the prescribed and descriptive curriculum theory that was at the foundation of the SEEDs module.

The PLACES classroom is one in which the relationships between students and teacher are characterized by mutual respect, and dialogue and consultation concerning the content and process of the curriculum. The teacher appropriately delegates aspects of decision-making and responsibility for learning experiences to students. The class functions as a learning community where students engage in the collective and cooperative construction of knowledge. Students are engaged in the work of learning and are active participants in class discussions and collaborative activities. The learning environment honours the individual differences and diversity of learning styles among the students by providing opportunities for students to be self-regulating and self-directed in their learning activities. This is a class with a lively and active interface to the community and environments outside the school. Students and teachers regularly employ human and physical resources in the environment and community in the service of developing rich and engaging learning experiences.

## **Perceptions of the SEEDs Learning Environment**

*How do students perceive the actual learning environment of the SEEDs module? What were the students' perceptions of the learning environment of the SEEDs module as they experienced it?*

The SEEDs students' perceptions of the program's learning environment were essentially positive. There were constructive critiques about content, and the intensity and personal demands of the experience as well as suggestions that there should be modelling of EE in secondary classrooms. (The SFU PDP program has often been

criticised as being dominated by elementary teachers and student teachers). However, two words come to mind when thinking of the SEEDs learning environment: community and experiential. A large element of the learning environment was the strong community that developed among the students. Some noted being surprised by this.

*I did feel I was entering a community of teachers but the 'village' that I find myself apart of, is what I want for my students. In fact it is what I wish for the school system and beyond.*

I do not think enough can be said about the strong community and group cohesion that existed in the SEEDs learning environment. Again and again, the students spoke of the feelings of community that they had experienced and mentioned the role of the FAs in Education 401/2 and their instructors in EDUC 452 in nurturing community. As a possible result, many of the students adopted community building as one of the main foci of their own teaching and learning environments both in their Education 405 practicum and as a group when they worked together to run the camp *School of Wonderstanding*:

*In March, our students participated in...The School of Wonderstanding...Students were given a leadership role, and they decided community building was an important focus. They applied a variety of skills and lesson ideas related to a range of child-friendly themes. Students recognized the correlation between establishing relationships with children in the camp and the community they intend to establish in their 405 practicum. (Robertson et al, 2011, p. 3).*

Others mentioned how relieved they were that this module practiced experiential education, and was not lecture based as they had assumed it would be like traditional courses in higher education. In addition, the focus the module placed on learning environments gave some of the student teachers a new perspective, as they never had thought of how the environment of the classroom affected learning. Perhaps they thought about it, but in SEEDs they developed a common language with which to talk about it. That was mentioned in one of the Matrix Interviews and I think it is important. In any profession, one of the tasks faced by novices, is to learn a common terminology or language so that they can communicate having shared meanings.

*Funny enough I thought that PDP would function like university being fed information to file and be able to replicate, a very individual process. I*

*thought that PDP would be showing me Ministry standard prescribed ways to teach what the children have to know in order to complete the system... I am learning an almost overwhelming amount and very little from the classic 'swallow, regurgitate' method.*

*When first entering PDP, I thought the focus would primarily be based on lesson plans, class management, organizing lectures, and developing worksheets; I soon came to realize that it takes much more to become a successful teacher.*

The majority of the student commentary speaks to elements that have made the SEEDs experience memorable to them. Specific comments were made about the strong leadership and mentorship of the Faculty Associates; the uniqueness and strength of the SEEDs community with like-minded people; memorable experiences at NVOS and the various fieldtrips; and lastly, valuing what they have learned in regards to environmental education theory and practice, and being happy in their decision to apply for this EE module.

The results from the Preferred-PLACES and Actual-Preferred when compared support the assertion made here that the actual learning environment as perceived and experienced by the teacher candidates in SEEDs was no different than the students' preferred learning environment, and therefore was an enjoyable one. While the teacher candidates appeared to be concerned about the intensity and demands of the program and how it impacted their personal lives (e.g. opportunities to work out, spend time with family, etc.), they still ranked their actual learning environments very high.

In summary, it is clear from the comments of the participants that for most, if not all, their SEEDs experiences were highly positive and that they generated significant changes in perspectives about teaching, learning experiences, and learning environments. It also gave some participants a greater sense of confidence in their ability to teach to their passions and to make a difference through environmental education by being role models in their personal behaviours and by integrating environmental and sustainability concepts throughout the curriculum. The cohort pattern of organization generated and sustained a learning community among the students, while the learning experiences that occurred in the campus and field school portions of

the program modeled place-based and experiential approaches to learning and teaching.

## **Memorable and Transformational Experiences**

*What are students' most memorable (i.e. transformational) experiences in the SEEDs module?*

While the two-day/overnight at the North Vancouver Outdoor School was mentioned as an enjoyable experience and as important to the community dynamics, as was also the week long day camp *School of Wonderstanding*, the Haida Gwaii field course appeared to be the most transformational program experience. A very recurrent theme within the responses to Question One of the Interview Matrix was the importance of the Haida Gwaii experience in the overall design of the SEEDs program. From the onset of the program the students were excited about the opportunity to take a course in Haida Gwaii. One student commented in her reflection at the start of the program, that this was a real opportunity to do the work she had always wanted to do, which was work with the community to give to the community.

As described elsewhere in this thesis, the Haida Gwaii field experience was a required part of the overall EDUC 404 semester for SEEDs students and was offered under the course rubric of EDUC 452: Environmental Education. Coming into EDUC 452 - Haida Gwaii, the SEEDs students came with a variety of expectations, with the most common ones aimed at learning about the place from the Skidegate community about the environment they would find themselves in after crossing the Hecate Strait from the coastline of B.C. Other hopes were to the grasp the confidence and understanding of First Nations culture to develop their own First Nations unit; to be pushed personally to 'places' they have avoided going, in a positive and developmental way; getting an opportunity to infuse the CARE framework from the ELE curriculum guides (BC Ministry of Education); and, strengthening their own SEEDs community

No other program experience received the same amount of attention in student reflection time. When interviewed, students repeatedly noted that experience as being valuable in that it provided a direct and extended example of how the teaching and

learning concepts of the SEEDs program could be applied while also creating a new social dynamic for the community of students. *“Haida Gwaii was a huge part of the equation.” “Haida Gwaii-- incredible experience.”* For some students, the Haida Gwaii experience was their first major trip away from home and immersed them in an entirely new social and physical context. *“Haida Gwaii-- away from home growing more self-reliant”.*

Hearing from the Haida community after the course, the positive experience was a shared one. The flexible nature of the program in developing learning opportunities for the SEEDs students through complete integration of the pre-service teachers activities in the community, such as volunteering at events and connecting with local leaders.. Most importantly, through this collaboration both communities demonstrated a clear reciprocity in the educational experience.

In summary, the students attested to their belief in the power of direct experiences during the on-campus and field-based portions of the SEEDS program. The impact of the Haida Gwaii field school, and its beautiful and ecologically unique setting, was evident throughout the student commentaries.

## **Comprehension of Environmental Education**

*Do students’ understanding of environmental education change from beginning to end of the SEEDs module?*

After reviewing the data this is a difficult question to answer. The dominant impression to be taken away from the responses to the four questions activated through the Interview Matrix process is one of a group of pre-service student teachers who entered the program with interests in the environment and sustainability. Many of the letters written by students in support of their applications to SEEDs indicate that an environmental ethic was among their core values. However, both their letters of application and early reflections, show little deep understanding of what encompasses environmental education. Student reflections and application letters indicate that they supported the inclusion of environmental issues in school programs and taking students outside to learn, but had no understanding of what these might entail. In short, the

students had already somewhat developed personal curriculum theories about environmental education, even if they did not have a firm understanding of what EE is when they entered the module or the tools to implement EE in their own teaching practices.

The written comments made by the student teachers and supported by commentary from their FAs and SAs, show novice teachers developing an infusionist approach to EE in classrooms. The students commented that they had initially found it harder than they thought to incorporate EE, but as they became more confident in their teaching they intuitively infused elements of EE in their practice, such as simply taking students outside for an English Literature or Biology class. Some even suggested that they were surprised at the number of opportunities for EE to occur in the regular curriculum.

I believe that these comments from the students and the Faculty and School Associates are important in that they suggest that the SEEDs module is not training teacher candidates to become environmentalists or to become environmentally concerned and aware— they already possess many of these attributes; what this module does for these environmental-and community-minded teacher candidates is provide them with the support and the network they need to become the teachers they would like to be—that is, to be effective teachers with a strong environmental ethic.

In summary, most students referred to changes in their thinking about the nature of environmental education, and in the majority of cases, the direction of the change was to see EE as being much broader in scope, more multi- or interdisciplinary and holistic in nature rather than being in the province of a single subject, such as science or social studies. They saw environmental education as being a way of thinking about the whole curriculum and teaching more than a specific subject or topic.

## **Teacher Inquiry and Skills Valued**

*What does practical inquiry tell us about the skills valued by pre-service teachers in an EE module?*

A teacher inquiry is a professional development activity that may be used by a teacher to strengthen a current practice or to document the effectiveness of a new practice. The SEEDs students were asked to undertake an inquiry as part of their 405 practicum experiences, although they formulated and discussed possible inquiries prior to the final practicum. Of the inquiry questions that were developed and investigated by the selected sample group, only 2 of the 6 made reference to environmental education. This suggests two possible interpretations: First, because the SEEDs module was already heavy on modelling and teaching environmental education, when the students were given an opportunity to direct their learning through the teacher inquiry activity, they took the opportunity to expand their pedagogical portfolio and investigate another aspect of teaching that they believed would be valuable to them in their practice rather than continuing to focus on EE.

A second reason, and one slightly linked to the first and, based on the commentaries of the student teachers after both their short practicum and extended practicum experiences, is that they perceived a need improve their ability to be adaptable and flexible in accommodating the curriculum to the needs of diverse learners and those with special needs. This professional development need was given priority in addition to curriculum management, student engagement, and assessment practices. The inquiry questions developed and investigated by the selected sample group spoke to the realities of the contemporary classroom. That is not saying that EE plays second fiddle to those teaching practices, but that at the foundation of environmental education is education, and these students are enrolled in a teacher education program to become teachers. The inclusion of the inquiry activity as a focus of the SEEDs program appears to have been valuable to the students as a means of directing their own learning during the program.

## **Environmental Education and the Practicum**

*What factors encourage/discourage pre-service teachers to engage in EE during their practicum? What themes of environmental education can be described in the emerging practices of pre-service teachers participating in an EE module?*

An influential factor that both encourages and discourages pre-service teachers to engage in EE during their practicum as commented by them is their School Associate. The importance of the School Associate's role in an environmental education-themed teacher education program cannot be undervalued. The teacher candidates often mentioned the need to have EE modeled for them in the classroom. Positive commentaries were made by the students about having EE approaches modeled effectively by the FAs and the instructors of EDUC 452. However, during their practicum not all the SEEDs students were paired with an in-service teacher mentor (SA) who shared their values toward the environment. One of the SEEDs FAs commented on this topic.

*EE was never modeled for them in the classroom. The majority of the SAs' were not sympathetic to EE, and therefore did not model EE to the SEEDs students, who need this to shown in practice.*

This is a fairly powerful observation in the context of a teacher education program focused on environmental education, as was the case for SEEDs. For some of the student participants the lack of apparent interest in or support for EE on the part of their SA was a barrier for them during the practicum. However, for the majority it was simply a temporary obstacle until they reflected on their current situation and adapted their practices in such a way that EE could be infused rather than seeking to develop entire curriculum segments or units specifically focused on environmental topics or issues. The infusion approach seemed generally to have the support of School Associates, although clearly some Associates wanted student teachers to adapt their lessons to the existing classroom routines and the Associate's teaching style. The issue of selection or recruitment of School Associates for a program like SEEDS are considered in the Recommendations section of this chapter

While not being as influential during the practicum as they were during Education 401/2 and EDUC452, the FAs and Faculty Sponsor were important role models for the student teachers prior to and during their practicum. In their written reflections and the Interview Matrix results the student teachers commented about how their FAs and instructors in Haida Gwaii, including the FS and this researcher, had modeled experiential and place-based education. The aspect of community building and

strengthening that was included early and continued during Education 401/2 and the Haida Gwaii course modeled the importance of community building to their teaching practice and also to their intended learning environments.

In summary, students frequently described a range of experiences in implementing environment-related teaching and learning activities. Some clearly reported that they had numerous opportunities to bring environmental themes and concepts into their practicum classes. Many reported taking students outside the classroom/school in order to engage in a variety of learning experiences. At the same time, some students felt that they had not had as much opportunity to go outside as they would have liked, mainly because of a lack of support from their SA or because of administrative policies or “school culture” in general.

## **Recommendations**

The overall impression taken from the students’ written responses is one of a group. Is a group of pre-service student teachers who entered the program with interests in the environment and sustainability, and who have seen that interest focused into both personal and professional goals and have developed new skills and knowledge; they are now eager to move into active professional practice. Many had a sense of excitement at the prospect of putting the themes of the SEEDs program into practice in their own classrooms. Their responses suggest the power of modeling in a learning environment or experience: students appreciate hearing concepts and ideas, but they deeply appreciate seeing those ideas and concepts applied to their own professional learning experiences. In SEEDs, the role of teacher resides not just with faculty or faculty associates but also with their peers and colleagues in a community of practice, a cohort that works together (and at times lives in residence or camps outdoors together) for a year. It is interesting that the students do not speak of the influence of specific courses or requirements as much as they refer to the overall quality of the SEEDs module experience. Clearly, there are some high point learning experiences—the Haida Gwaii field school during the middle semester of the professional year (Education 404) is mentioned repeatedly. There are also references to the practicum experience, mainly in a positive way, although with some mention of the challenges of attempting, as very

novice professionals-in-training, to introduce teaching practices and curriculum concepts that challenge the school or classroom cultures that were found in some practicum placements.

Having described the experiences of the SEEDs program as seen through the commentaries and reflections of the student teachers in the SEEDs module, and through the comments and impressions of the program's Faculty Associates, I believe I am in a position to present some recommendations concerning the relevance of the SEEDs program experience for the general concept of applying pre-service teacher education as a lever to enhancing the presence of environmental education in schools, and potentially through schools, in the larger society.

This is a mixed method study, with a very large qualitative component. I was a participant as well as a researcher in the study. Within this context and scope my recommendations should not be seen as broad generalizations as I can only speak from my personal experience and involvement with the Professional Development Program at Simon Fraser University. If the Faculty of Education at SFU wishes to sustain and extend its leadership in environmental education these recommendations should help in achieving those goals. Other university FoEs may also find these recommendations helpful in achieving those same goals or in developing a successful EE teacher education program at their university.

### ***Recommendation 1: The Role of School Associate***

*Overall, this practicum experience has met, and surpassed expectations. This is mainly due to my mentors [FA and SA] and colleagues at my practicum school and my work effort within this practicum...For me to explore my teaching style I think I was really lucky to receive School Associates that allowed allow me to experiment in their class. - Helvia*

This study has brought attention to the important effect that the School Associate (SA) has not only on the development of the teacher candidates from student to teacher, but also in modelling and supporting them in their attempts to infuse environmental education into their practices. As has been mentioned a few times in this Chapter, the teacher candidates indicated their fondness for having teaching practices modelled for

them. It is the SAs who over the course of PDP spend their time working with the teacher candidates in developing their classroom practice and fluency as novice teachers. While Faculty Associates (FAs) may spend more time with the students over the course of the entire 12 months of the program, it is the SA who models classroom practice to them and this is the critical element of the practicum experience.

The PDP at SFU does not match a SA with teacher candidates or with particular module themes. Unfortunately, the rather random or opportunistic nature of pairing student teachers with SAs may result in bad pairings or ineffective mentoring relationships between students and School Associates. These bad pairings may reflect that the SA and teacher candidate do not share similar values personally or professionally. A number of the SEEDs teacher candidates, commented that one of the biggest barriers they encountered was not having the perceived support of their SA. As one of the FAs noted, “EE was never modeled for them [i.e. teacher candidates] in the classroom. The majority of the SAs’ were not sympathetic to EE, and therefore did not model EE to the SEEDs students, who need this to be shown in practice”.

It is my recommendation for teacher education EE modules/programs similar to SEEDs to give particular attention to the recruitment of SAs. If teacher education programs like SEEDs are to act as a lever to enhance the presence of environmental education in schools, and potentially through schools, in the larger society, the SA must be on board with the goals of the EE module and model effective teaching combined with approaches to the implementation of EE in classrooms. Ways of doing this could be having the SA involved earlier on with the module/program, or hosting a day where all the SAs would be introduced to the EE pre-service teachers so that a community of practice may develop in addition to providing professional development for the SAs. There are of course administrative and financial barriers that need to be dealt with if this is to happen, but the emphasis here is that effective modelling and mentoring of the pre-service teachers are necessary if we are to expect the them to replicate or adopt and learn from what they experience during their teacher education program and apply this learning in their teaching careers.

## ***Recommendation 2: The Role of Faculty Associate***

*The Faculty Associates who led the module demonstrated a very clear direction and modeled for us daily that need to be open, to be “real” so that we could see how connections are built. I may have come into the program with a strong set of potential skills and focus, but without the lesson of opening up, I would have been much less capable at developing a rapport with the students I encountered in practicum. And, frankly, without that rapport, the experience would not have been nearly as enjoyable and fun as it was... - JP*

The Faculty Associate (FA) played a critical, and perhaps the most important role, during the 12 months of the SEEDs module and the PDP. As representatives of the schools in the university, and as the first mentors of the teacher candidates, the success of any module in the PDP at SFU relies extensively on the FAs and the learning environments they initially facilitate and develop with the teacher candidates. Hence the focus of this recommendation on the learning environment modeled by the FAs.

As reported numerous times by the SEEDs students, the FAs modeled in their teaching practice the EE concepts, and curriculum theories they were introducing to the student teachers. This modelling effect is at the foundation of the SEEDs experience. This effect is even more powerful when all 32 students in a module are not only open to these curriculum theories but eagerly want to use them in their own practices. The learning environment that is nurtured and sustained by the FAs, such as the strong community seen in SEEDs has as much to do with how the FAs interact with the teacher candidates as it does with how the FAs interact with their professional colleagues and fellow team members. When two FAs lead a program together as a team, their relationship with one another is a critical element of the learning environment and also presents a model of professional behaviour in classroom settings.

It is my recommendation for teacher education EE modules/programs that may be similar to SEEDs to place particular attention on the selection of the FAs, and to ensure that the FAs model what they teach. Students appreciate learning about concepts and ideas, but they deeply appreciate seeing those ideas and concepts applied to their own professional learning experiences. Possibilities could include frequent interaction between the Faculty Sponsor (FS) and the FAs before and during the program/module. The FS provides valuable support to the FAs.

### ***Recommendation 3: Scheduling and Programming***

Having the intake for the SEEDs module starting in January and allowing the Education 404 semester to follow immediately after Education 401/2 and before the final 405 practicum, was noted as being an important factor to the success of the SEEDs module in 2011 because it allowed the teacher candidates to hone their teaching skills and tools before the extended practicum. The additional 4 months of 404/452 provided them with an opportunity to develop more confidence as novice teachers.

*At this point of PDP, one thing is certain: I am very thankful to be in the January intake of the program. If I were to go into my 405 practicum now, I'm not sure I would be prepared and ready for such a challenge. Friends of mine who went through the September intake of PDP explained to me that although they eventually got into a groove and made it through 405, they do wish they had a break such as I will have before entering the term. I am looking forward to spending the summer relaxing, and preparing both my mind and my toolkit for the 405 semester? - Lance*

Another important piece in developing the strong and supportive SEEDs community, between students and their FAs, was the 2-day/1-night retreat at the North Vancouver Outdoor School. This retreat happened near the start of the second week of the module in January 2011. The teacher candidates had just met each other the week before, and it is almost certain that they came out of the first week of the program somewhat overwhelmed with new people and learning experiences. The activities held at NVOS over the two-day retreat, and the place itself, not only brought them closer as a community but also modeled what could be possible for them with their own classrooms.

Having the Education 404 semester before the Education 405 practicum allowed for EDUC 452 Environmental Education - Haida Gwaii to happen in the middle of the SEEDs module and PDP experience. As the student remarks demonstrate, the required field course in Haida Gwaii was not only one of the highlights of this course but also one of the most transformational experiences for the SEEDs teacher candidates at a professional and personal level.

*I have gained such a deeper insight into the value of experiential learning and place-based education. It's one thing to believe that it has value, and another thing to experience its value. It is incredible how much personal growth can occur in a course like 452 in an amazing place such as Haida*

*Gwaii. Not only did we nail the course objectives, but there were so many other individual experiences that helped us practice patience, endurance of the mind, and community building. I will definitely take those experiences and apply them to my 405 semester and throughout my teaching career. – Student D*

I believe that the growth that happened through the required Haida Gwaii field experience strengthened the students as individuals and also as teachers by providing them with additional educational experiences in place-based curriculum development and implementation.

Collaborating with the Skidegate community provided positive experiences to them as well, allowing them not only to teach us about their community but also for the pre-service teachers to inform them of education and EE. It created opportunities for the Skidegate community to find out what best ways have been working to “get our kids out of the classroom, what can we do that incorporates our culture into their learning outside of the classroom”.

It is my recommendation for teacher education EE modules/programs that may be similar to SEEDs to: a) schedule an electives semester after the initial semester that has exposed the new pre-service teachers with education curriculum theory and early experiences in the classroom, and before the teaching practicum, allowing the pre-service teachers to take courses on their subject content and grade, in addition to requiring or highly recommending the pre-service teachers to register for a community-based field course; b) plan a retreat at the beginning of the program that could act as a both a place to help form community but also has EE programming that can provide the pre-service teachers with a model for their classroom practice but also for their teaching careers; and c) to require or highly recommend pre-service teachers in the module/program to register in a community-based field course where they can use all the educational and EE tools they have been gathered up until that moment to develop place-based curriculum that has been co-developed with the local community, and if at all possible, enacted as well with them so that it is modeled for the community educators.

## Significance to Education

As I write this last passage, a verse of Paulo Freire's (1968/2005) quoted earlier in this thesis returned to my memory. I recognized its connection to the story presented by this thesis, and the support the story gives to Freire's beliefs. Freire encouraged people and communities to envision a better world and society; and with the support of these groups, to strategize ways of overcoming obstacles to reach specific goals. He theorized that what arises in the process is a strong sense of community. In 2011 atop Burnaby Mountain in, British Columbia, Canada one community, the SEEDs community did just that.

The significance of this study of the SEEDs module has appeal to the fields of environmental education, teacher education and learning environment research and practice. The recommendations here are not meant to be a prescription on how to develop a EE teacher education program, but rather insights from my experiences in this program and my best attempt to provide the insights of all those who had participated in this SEEDs module from January 2011 – December 2011.. Some of these recommendations may be perceived as unrealistic in some university regimes as they trim costs to be more 'sustainable' economically. However, by ignoring some of the apparent small details that contribute to a positive learning environment during a teacher education program, we incur other costs pedagogically. And frankly, in a teacher education program it is that (pedagogy) we should all be worrying about. if "teacher-education institutions [are to] serve as key change agents in transforming education and society [to a more sustainable future]" (UNESCO, 2005a, p. 11).

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## **Appendix A.**

### **SEEDs Student Profile Questionnaire**

Name:

Age:

Languages spoken:

Degree(s) entering SFU PDP:

Institution(s)/University(ies) of Previous Studies:

What grade level is your preference to teach? What would be your second preference?

What subject(s) are you interested in teaching?

Why were you interested in applying to this environmental education module in SFU PDP?

Why are you interested in becoming a teacher?

## Appendix B.

# Place-based Learning and Constructivist Environment Survey (PLACES) – Preferred Version

### Place-based Learning and Constructivist Environment Survey (PLACES)

*For each of the statements below, CIRCLE the dot which reflects what your preferred experience for this class. Remember, there are no right or wrong answers, your honest opinion is wanted*

| RI  | <i>In this class ...</i>   | <i>always</i> |   | <i>sometimes</i> |   | <i>never</i> |
|-----|--|---------------|---|------------------|---|--------------|
| 1.  | I want to learn about my local environment.  | •             | • | •                | • | •            |
| 2.  | I want my new learning to start with ideas important to the local environment.                       | •             | • | •                | • | •            |
| 3.  | I want to gain a better understanding of the environment and places outside of university.           | •             | • | •                | • | •            |
| 4.  | I want to learn interesting things about the environment outside of university.                      | •             | • | •                | • | •            |
| 5.  | I want my lessons to be supported with field experiences and other field-based activities.           | •             | • | •                | • | •            |
| CV  | <i>In this class ...</i>   | <i>always</i> |   | <i>sometimes</i> |   | <i>never</i> |
| 6.  | It would be all right for me to ask the instructor “why are we learning this?”                       | •             | • | •                | • | •            |
| 7.  | It would be all right for me to ask for a better explanation of learning activities when I need one. | •             | • | •                | • | •            |
| 8.  | It would be all right for me to request fewer interruptions that interfere with my learning.         | •             | • | •                | • | •            |
| 9.  | It would be all right for me to express my opinion.  | •             | • | •                | • | •            |
| 10. | It would be ok for me to speak up for my rights.   | •             | • | •                | • | •            |
| SN  | <i>In this class ...</i>   | <i>always</i> |   | <i>sometimes</i> |   | <i>never</i> |
| 11. | I want to be provided with opportunities to talk with other students about how to solve problems.    | •             | • | •                | • | •            |
| 12. | I want to make an effort to explain my ideas to other students.                                      | •             | • | •                | • | •            |
| 13. | I want to ask other students to explain their ideas and opinions.                                    | •             | • | •                | • | •            |
| 14. | I want students to ask me to explain my ideas.   | •             | • | •                | • | •            |
| 15. | I want other students to be provided with opportunities to explain their ideas to me.                | •             | • | •                | • | •            |
| GC  | <i>In this class ...</i>   | <i>always</i> |   | <i>sometimes</i> |   | <i>never</i> |
| 16. | I want students to get along well as a group.  | •             | • | •                | • | •            |
| 17. | I want to get to know other students.  | •             | • | •                | • | •            |
| 18. | I want members of the class to help one another out during classroom activities.                     | •             | • | •                | • | •            |
| 19. | I want students get to know each other well through participation in classroom activities.           | •             | • | •                | • | •            |
| 20. | I want to be able to depend on others for help during classroom activities.                          | •             | • | •                | • | •            |

## Place-based Learning and Constructivist Environment Survey (PLACES)

| SI  | <i>In this class ...</i>  | <i>always</i> | <i>sometimes</i> | <i>never</i> |
|-----|---|---------------|------------------|--------------|
| 21. | I want the instructor to ask me questions when we are learning.                               | •             | •                | •            |
| 22. | I want to ask the instructor questions when we are learning.                                  | •             | •                | •            |
| 23. | I want my ideas and suggestions to be used during discussions.                                | •             | •                | •            |
| 24. | I would want to pay attention.  | •             | •                | •            |
| 25. | I want to offer my opinions during discussions.   | •             | •                | •            |
| GC  | <i>In this class ...</i>  | <i>always</i> | <i>sometimes</i> | <i>never</i> |
| 26. | I want to help the instructor plan what I'm to learn.   | •             | •                | •            |
| 27. | I want to help the instructor to decide how well I am learning.                               | •             | •                | •            |
| 28. | I want to help the instructor decide which activities or projects are best for me to work on. | •             | •                | •            |
| 29. | I want to help the instructor decide how much time I spend on learning activities.            | •             | •                | •            |
| 30. | I want to help the instructor decide the activities I do                                      | •             | •                | •            |
| OE  | <i>In this class ...</i>  | <i>always</i> | <i>sometimes</i> | <i>never</i> |
| 31. | I want to be able to go beyond regular learning activities and do some study on my own.       | •             | •                | •            |
| 32. | I want to be encouraged to think for myself.  | •             | •                | •            |
| 33. | I want opportunities to pursue my interests.  | •             | •                | •            |
| 34. | I want to design my own learning projects.  | •             | •                | •            |
| 35. | I want to be able to express myself in my learning.   | •             | •                | •            |
| EI  | <i>In this class ...</i>  | <i>always</i> | <i>sometimes</i> | <i>never</i> |
| 36. | I want to be more engaged during field trips.   | •             | •                | •            |
| 37. | I want to be able to express myself freely during field experiences.                          | •             | •                | •            |
| 38. | I want learning to very important for me during our field experiences.                        | •             | •                | •            |
| 39. | I want to put a lot of effort into the learning activities during our field trips.            | •             | •                | •            |
| 40. | I want to spend most of the time during field local trips learning about my environment.      | •             | •                | •            |

*Thank you for filling out this questionnaire! (please return it to your instructor)*

## Appendix C.

# Place-based Learning and Constructivist Environment Survey (PLACES) – Actual Version

### Place-based Learning and Constructivist Environment Survey (PLACES)

For each of the statements below, CIRCLE the dot which best reflects your feeling or experience in this class. Remember, there are no right or wrong answers, your honest opinion is wanted.

| RI  | In this class ...   | always |   | sometimes |   | never |
|-----|---|--------|---|-----------|---|-------|
| 1.  | I learn about my environment outside of university.   | .      | . | .         | . | .     |
| 2.  | My new learning starts with issues important in the local environment.                                  | .      | . | .         | . | .     |
| 3.  | I gain a better understanding of the environment and places outside of university.                      | .      | . | .         | . | .     |
| 4.  | I learn interesting things about the environment outside of university.                                 | .      | . | .         | . | .     |
| 5.  | Lessons are supported with field experiences and other field-based activities.                          | .      | . | .         | . | .     |
| CV  | In this class ...   | always |   | sometimes |   | never |
| 6.  | It's all right for me to ask the instructor "why are we learning this?"                                 | .      | . | .         | . | .     |
| 7.  | It's all right for me to ask for a better explanation of confusing learning activities when I need one. | .      | . | .         | . | .     |
| 8.  | It's all right for me to request fewer interruptions that interfere with my learning.                   | .      | . | .         | . | .     |
| 9.  | It's all right for me to openly express my opinion.   | .      | . | .         | . | .     |
| 10. | It's all right for me to speak up for my rights.  | .      | . | .         | . | .     |
| SN  | In this class ...   | always |   | sometimes |   | never |
| 11. | I am provided with opportunities to talk with other students about how to solve problems.               | .      | . | .         | . | .     |
| 12. | I make an effort to explain my ideas to other students.   | .      | . | .         | . | .     |
| 13. | I ask other students to explain their ideas and opinions.   | .      | . | .         | . | .     |
| 14. | Other students ask me to explain my ideas.  | .      | . | .         | . | .     |
| 15. | Other students are provided with opportunities to explain their ideas to me.                            | .      | . | .         | . | .     |
| GC  | In this class ...   | always |   | sometimes |   | never |
| 16. | Students get along well as a group.   | .      | . | .         | . | .     |
| 17. | I have opportunities to get to know other students.   | .      | . | .         | . | .     |
| 18. | Members of the class help one another out during classroom activities.                                  | .      | . | .         | . | .     |
| 19. | Students get to know each other well through participation in classroom activities.                     | .      | . | .         | . | .     |
| 20. | I am able to depend on others for help during classroom activities.                                     | .      | . | .         | . | .     |

## Place-based Learning and Constructivist Environment Survey (PLACES)

| SI  | <i>In this class ...</i>  | <i>always</i> | <i>sometimes</i> | <i>never</i> |
|-----|---|---------------|------------------|--------------|
| 21. | The instructor asks me questions when we are learning.                                | •             | •                | •            |
| 22. | I ask the instructor questions when we are learning.                                  | •             | •                | •            |
| 23. | My ideas and suggestions are used during discussions.                                 | •             | •                | •            |
| 24. | I pay attention.  | •             | •                | •            |
| 25. | I offer my opinions during discussions.   | •             | •                | •            |
| SC  | <i>In this class ...</i>  | <i>always</i> | <i>sometimes</i> | <i>never</i> |
| 26. | I help the instructor plan what I'm going to learn.                                   | •             | •                | •            |
| 27. | I help the instructor to decide how well I am learning.                               | •             | •                | •            |
| 28. | I help the instructor decide which activities or projects are best for me to work on. | •             | •                | •            |
| 29. | I help the instructor decide how much time I spend on learning activities.            | •             | •                | •            |
| 30. | I help the instructor decide which activities I do                                    | •             | •                | •            |
| OE  | <i>In this class ...</i>  | <i>always</i> | <i>sometimes</i> | <i>never</i> |
| 31. | I am able to go beyond regular learning activities and do some study on my own.       | •             | •                | •            |
| 32. | I am encouraged to think for myself.  | •             | •                | •            |
| 33. | There are opportunities to pursue my interests.                                       | •             | •                | •            |
| 34. | I can design my own learning projects.  | •             | •                | •            |
| 35. | I am able to express myself freely in my learning.                                    | •             | •                | •            |
| EI  | <i>In this class ...</i>  | <i>always</i> | <i>sometimes</i> | <i>never</i> |
| 36. | I am more engaged during field trips.   | •             | •                | •            |
| 37. | I am able to express myself freely during our field experiences.                      | •             | •                | •            |
| 38. | Learning is very important for me during our field trips.                             | •             | •                | •            |
| 39. | I put a lot of effort into the learning activities during our field trips.            | •             | •                | •            |
| 40. | I spend most of the time during field trips learning about my local environment.      | •             | •                | •            |

*Thank you for filling out this questionnaire! (please return it to your instructor)*

## **Appendix D.**

### **Email Invitation to Submit Letter of Intent for SEEDS**

Dear PDP Applicant,

Beginning in January 2011, a module of the Professional Development Program (PDP) will be offered in environmental education. This integrated module will provide students with all the requirements to meet certification with the BC College of Teachers while also providing a range of special environmental teaching and field experiences that MAY lead to the completion of the minor in Environmental Education as part of the Bachelor of Education as a second degree. This option is open to all applicants to PDP, including those who have not yet completed an undergraduate degree. For all applicants to this special theme -- enrolment in the Minor in Environmental Education will also be strongly encouraged.

The SEEDs module (Sustainability Education in an Environment of Diversity) will begin in the 401/402 Spring Semester (January) and be followed by a selection of elective courses during the summer 404 semester. Students choosing the option of the Environmental Education minor (and the August field experience requirement for this), will take elective courses during the Summer semester that do not have a scheduled exam. As part of this experience, students will register in a special 8 credit offering of Environmental Education (EDUC 452-8), which will consist of an orientation weekend, plus an intensive two-week field experience scheduled to begin in early August 2011 – tentative location Haida Gwaii. This will be followed by a final 405 Practicum experience. Throughout the year, students will be exposed to a variety of formal and informal experiences, which will, upon successful completion of the PDP, lead to formal certification by the BC College of Teachers.

If you wish to be considered for admission into this special pilot module please email PDP Admissions of your intent and cc the Faculty sponsor.

## Appendix E.

### PDP Goals Compares with SEEDs Module Goals

| General PDP Goals   | Specific SEEDs Module Goals  |
|---|--|
| <p>1. The development of a clear, coherent and justified view of education that enables one to:</p> <ul style="list-style-type: none"> <li>- understand the place of education in an open, pluralistic and caring society;</li> <li>- determine the content, methods and institutional arrangements that are relevant, worthwhile and appropriate for the education of children;</li> <li>- have a personal vision of what one can achieve as an educator;</li> <li>- understand how schooling and other institutions influence students</li> </ul>                                 | <p>3. Examine your beliefs about teaching and learning</p> <p>4. Assume responsibility for your professional development</p> <p>6. Develop informed beliefs and educational theory.</p>  |
| <p>2. The development of a clear commitment to:</p> <ul style="list-style-type: none"> <li>- respect students as persons with varied interests, backgrounds, points of view, plans, goals and aspirations;</li> <li>- care about students and their individual development, uphold standards of excellence inherent in various forms of inquiry;</li> <li>- uphold the principles that ought to govern a civilized, democratic and pluralistic community;</li> <li>- establish and maintain ethical working relationships with all members of the educational community.</li> </ul> | <p>7. Learn to accommodate and celebrate students' differences</p> <p>8. Develop effective classroom practices which nurture children.</p>   |
| <p>3. The development of clear commitment to lifelong learning manifest in:</p> <ul style="list-style-type: none"> <li>- openness to alternatives and possibilities; reflective practice;</li> <li>- engagement in dialogue and collaboration with colleagues, students, parents and others in the educational community;</li> <li>- ability to form and reform ideas, methods, techniques;</li> <li>- setting an example to students;</li> </ul>   | <p>1. Develop a strong sense of community</p> <p>5. Become a caring and reflective teacher.</p> <p>9. Practice ethical, collaborative relationships with colleagues that are characterized by open and authentic communication</p> |

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| - stimulating students to be continuous learners.   |   |
| 4, The development of ability to be a thoughtful and sensitive observer of what goes on in the classroom.   | 5. Become a caring and reflective teacher.  |
| 5. The development of ability to create opportunities for learning that are:<br>- engaging and imaginative; significant and relevant to pupils' educational development;<br>- intellectually challenging; sensitive to issues of social equity and cultural diversity;<br>- appropriate to building habits of sound thinking;<br>- responsive to students' individual learning needs;<br>- reflective of growing understanding of what goes on in the classroom; consonant with learning goals. | 2. Accept the risks inherent in new learning<br>3. Examine your beliefs about teaching and learning<br>7. Learn to accommodate and celebrate students' differences<br>8. Develop effective classroom practices which nurture children.<br>10. To bring ecological and cultural awareness to student teaching practice |
| 6. The development of ability to put educationally sound curriculum ideas into practice in well-organized ways.   | C. Examine your beliefs about teaching and learning<br>F. Develop informed beliefs and educational theory.  |
| 7. The development of knowledge about:<br>- teaching subjects;<br>- how individuals and groups of students learn;<br>- evaluation practices.  | 5. Become a caring and reflective teacher.<br>7. Learn to accommodate and celebrate students' differences<br>8. Develop effective classroom practices, which nurture children.  |
| 8. The development of ability to use evaluation and assessment practices that:<br>- use evaluative data as a means of furthering student learning;<br>- appreciate the subjectivity of evaluation; make use of varied practices that are congruent with learning goals;<br>- respect the dignity of each learner;<br>- show understanding of the moral implications of evaluation and assessment practices;<br>- promote self assessment.   | 3. Examine your beliefs about teaching and learning<br>4. Assume responsibility for your professional development<br>6. Develop informed beliefs and educational theory.  |
| 9. The development of ability to use classroom interactions that:<br>- show caring and respect for every student;<br>- encourage learners to clarify and examine their  | 7. Learn to accommodate and celebrate students' differences<br>8. Develop effective classroom practices which nurture children.   |

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| <p>ideas;</p> <ul style="list-style-type: none"> <li>- are authentic, unpretentious and honest;</li> <li>- communicate openness, a tolerance for uncertainty, and appreciation of the spirit of inquiry.</li> </ul> |  |
| <p>10. The development of appreciation for and skill in organizing harmonious working groups, and interpersonally sound working relationships among students.</p>   | <p>7. Learn to accommodate and celebrate students' differences</p> <p>8. Develop effective classroom practices which nurture children.</p> |
| <p>11. The development of ability to observe, understand and respond respectfully to students with different learning styles and learning difficulties.</p>   | <p>5. Become a caring and reflective teacher.</p> <p>7. Learn to accommodate and celebrate students' differences</p>                       |

## Appendix F.

### Example of SEEDs Module Goals in the Evaluations of Teacher Candidates by the Faculty and School Associates.

| <b>SEEDS GOALS</b>                                  | <b>SA Report</b>   | <b>FA Report</b>  |
|---|--|---|
| A. Develop a strong sense of community              | <p><i>She challenged them to work co-operatively in groups and to wrestle with issues and ideas in classroom discussions.</i></p> <p><i>Throughout her practicum Student L. began to understand the social nature of learning and provided ongoing opportunities for students to work collaboratively.</i></p>   | <p><i>Student L. has also demonstrated her understanding of general requirements for student learning. She learned to see each of her classes as separate entities with their own needs and culture, as well as seeing the needs of individuals within her classes.</i></p> <p><i>She provided opportunities for students to work in groups as well as individually, knowing that both types of opportunities are required for student success.</i></p> |
| B. Accept the risks inherent in new learning        | <p><i>She works hard to create an environment where students are encouraged to take risks, knowing that they are heard, respected and valued.</i></p>  | <p><i>Despite facing a number of challenges with classroom management, Student L. remained positive and optimistic, constantly revising and refining her methods in order to create the best learning and teaching environment for her students.</i></p>  |
| C. Examine your beliefs about teaching and learning | <p><i>This is an area where Student L. has demonstrated a growing proficiency as she has learned to integrate her belief in explicit guidelines regarding behaviour and the opportunity for student's to voice their opinions and have a sense of freedom.</i></p> <p><i>Student L. is a thoughtful, responsible and committed individual who did very well in</i></p> | <p><i>Her Credo indicates a clear understanding that effective and creative planning and lesson delivery can go a long way towards eliminating management concerns, and that when students are actively engaged and take ownership of their own success they naturally create and support community in the classroom.</i></p>   |

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|  | <p><i>the Professional Development Program due to her passionate beliefs about education and her dedicated work ethic</i></p>  | <p><i>She places student well-being firmly at the center of her philosophy, and clearly articulates the importance of a harmonious classroom for optimum learning,</i></p> <p><i>Student L. has also demonstrated her understanding of general requirements for student learning. She learned to see each of her classes as separate entities with their own needs and culture, as well as seeing the needs of individuals within her classes.</i></p> |
| D. Assume responsibility for your professional development | <p><i>Student L. engaged in staff social activities, professional development activities and collaborative time at the school.</i></p> <p><i>She consistently sought out advice and feedback from her social associates, counsellors, administrators and a variety of other colleagues, graciously accepting it and striving to use it to refine her teaching practice.</i></p> <p><i>Student L. continues to build knowledge and pedagogical skills around the curriculum in both Science and Social Studies courses.</i></p> | <p><i>She worked diligently to employ the constructive suggestions of both her SAs, as well as those of her EA, in order to perfect her practice and participated in all post-observation meetings openly.</i></p> <p><i>In addition she has actively participated in a wide range of Pro-D activities related to teaching and is clearly committed to continuing her own development as a teaching professional.</i></p>                              |
| E. Become a caring and reflective                          | <p><i>Student L. is a true lifelong learner who</i></p>  | <p><i>At both that school and at Centennial</i></p>  |

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|   |  | <p><i>with IEPs, but has also identified and addressed particular needs of students who are not on IEPs but require adaptations for physical injuries, or need extra attention in order to solidify their grasp of key concepts within class.</i></p>   |
| <p>H. Develop effective classroom practices which nurture children.</p> | <p><i>Student L. reviews her lessons to see what can be changed to make it better the next time.</i></p> <p><i>She has approached teaching in a very responsible and organized manner and this has resulted in very well planned lessons and unit.</i></p> <p><i>Student L. has developed strength in teaching with "big ideas" in mind and in so doing, prepares lessons with clear objectives and activities which promote a high degree of critical thinking and intellectual discourse among her students.</i></p> <p><i>She designed many successful activities including a study of transients during the Great Depression and a song-writing activity about labour union activities during the Winnipeg General Strike.</i></p> | <p><i>Student L. remained positive and optimistic, constantly revising and refining her methods in order to create the best learning and teaching environment for her students.</i></p> <p><i>In terms of planning and lesson delivery, Student L. created dynamic lessons designed to appeal to a variety of student senses and sensibilities</i></p> <p><i>She also held her students to high academic standards, and worked with each student to ensure their best chance for success.</i></p> |