Meeting Different Needs: Balancing Environmental and Special Education in Ontario’s Elementary Classrooms

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Abstract

Research in the field of special and environmental education (EE) gained support in the 1980s, and the studies that have been conducted since then have explored the effects of Outdoor Education Centre (OEC) visits for students with special needs in other countries (Dominguez & Schilling, 2001; Volk & Cheak, 2003; Berger, 2006), but studies on Canadian students and in-class environmental instruction are currently lacking. This qualitative case study uses a review of relevant literature and three semi-structured interviews with certified teachers to explore educator self-efficacy in creating, integrating and differentiating EE programming for students with special needs in elementary classrooms in Ontario, Canada. Findings from the study reveal the dynamics of teaching for life skills, the importance of outdoor learning and parental involvement to increase school-wide support for EE, and how universal design for learning is a best practice for EE differentiation. This study uniquely contributes to a greater body of research that has important implications for reforms in education, especially in relation to school-based, diverse ability settings in Ontario.

Key Words: special education, environmental education, differentiated instruction, curricular integration, nature appreciation.
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Chapter 1: Introduction

1.0 Research Context

Our reliance on an ever-dwindling supply of natural resources, our hesitation to accept the effects of climate change, and our disconnection from nature all result in the consequences of our behaviour taking incredible tolls on the earth (Louv, 2008). Given this, what increases in importance, at least for educators like myself, is introducing youth to concepts like environmental stewardship, interaction with the natural world, and protection of the ecological systems that ensure our planet is ideal for humans to survive and thrive.

In 2009, new Ontario regulations mandated that environmental education (EE) be incorporated into every subject of every grade level (Ontario Ministry of Education (OME), 2009). According to the government policy entitled Acting Today, Shaping Tomorrow, the definition of EE is as follows:

Environmental education is education about the environment, for the environment, and in the environment that promotes an understanding of, rich and active experience in, and an appreciation for the dynamic interactions of:

• the Earth’s physical and biological systems;
• the dependency of our social and economic systems on these natural systems;
• the scientific and human dimensions of environmental issues;
• the positive and negative consequences, both intended and unintended, of the interactions between human-created and natural systems (OME, 2009, p. 4).

There are numerous challenges associated with integrating EE into Ontario’s elementary classrooms. In a study conducted by Ham and Sewing (1988), the four most common barriers to EE were conceptual, logistic, educational, and attitudinal, essentially proving that even during a
time of heightened environmental awareness, positive views of EE did not equate to it being taught in schools. With teachers viewing lack of time and experience as relevant barriers to this day, the addition of students with special and/or diverse needs in the classroom only heightens perceived constraints. In this study, learners with special (or diverse) needs encompass students with learning challenges, emotional and behavioural disorders, developmental delays, physical and intellectual disabilities, mental health concerns, and various other deterrents to unassisted learning.

1.1 Research Problem

In addition to the new requirements of integrating EE into the curriculum for all grade levels, the integration of students with special needs into today’s classrooms alone has significantly increased the amount of preparation, understanding and communication required of teachers as they navigate the world of Individual Education Plans (IEPs), differentiated instruction methods, lesson accommodations and modifications, and overall classroom management (McCray, Butler & Bettini, 2014). With so many different needs of learners present, it is essential that teaching methods maximize student success in an equitable way.

Differentiated instruction encompasses a style of teaching and learning that allows students to approach ideas and information in a multitude of ways (Hall, Strangman & Meyer, 2003). With a flexible mindset, recognition of varying levels of prior knowledge and preferences, and a combination of grouping sizes, teachers are able to meet students at their current level of understanding, and provide appropriate support for a wide range of learners within the same class (Hall, Strangman & Meyer, 2003; Santamaria, 2009). While some teachers are comfortable incorporating elements of differentiated instruction and EE into their teaching practice, others are new to this double integration. Past studies in this field have revealed mixed educator responses
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1.2 Purpose of the Study

The purpose of this study is to determine how elementary educators in Ontario view the relationship between EE and learners with special needs as they integrate EE into their classrooms. Its goal is to develop a starting point for dialogue on whether current levels of preparation and training in EE need to incorporate more procedural information and practical experience, and if so, how that can increase. By determining the level of comfort these educators have with differentiated instruction, it can help increase the benefits of EE to all students, and increase communication and understanding between teachers and outdoor educators.

Research in the field of special education and EE gained support in the 1980s, and the studies that have been conducted since then have explored the effects of Outdoor Education Centre (OEC) visits for students with special needs in other countries (Dominguez & Schilling, 2001; Volk & Cheak, 2003; Berger, 2006), but studies on Canadian students and in-class environmental instruction are currently lacking. This gap in the literature necessitated the use of a case study approach. Following the suggestions of Creswell (2013), using semi-structured interviews, I gathered first-hand perspectives on how elementary educators in Ontario respond to the diverse learning needs of their student with special needs. I have conducted in-person interviews with three educators, transcribed and coded them, and I now present the findings.

By understanding these perspectives, it is my hope that teachers aiming to increase the EE they provide in class will have an easier time recognizing how they can ensure the best experiences for all of their students. In addition, by comparing current, local approaches, my findings can aid in the development of a more structured training program for educators in
Ontario that maximizes student inclusion and engagement, educational retention, and educator self-efficacy.

1.3 Research Questions

This study is framed using the following research question: *How do elementary educators in Ontario perceive their ability to integrate EE and differentiated instruction for students with special needs in their classroom?* The subsidiary questions below were included to help determine levels of self-efficacy in terms of how educators view their teaching ability and capacity to integrate EE when it comes to servicing students with specific learning needs. From this study, I hope to elicit new understandings of how to approach this area of education and increase awareness of where gaps in both forms of education may lie.

How do teachers adapt EE for students with special needs? What methods or strategies for differentiated instruction have proven most effective for integrating EE and why? Do elementary educators feel prepared and capable to deliver tailored EE programming to students with special needs?

1.4 Background of the Researcher

I have always been passionate about learning and playing outdoors. Growing up in a neighbourhood that encouraged outdoor play was conducive to appreciating all that engaging with nature had to offer, and I believe this helped shape the way I now view and value EE. In high school, I was inspired by my ninth grade science teacher to join the environmental action club, and by the twelfth grade, I was the club’s co-president. In those four years, I learned a lot about waste management, garden maintenance, sustainable clothing, food and transportation, and I decided to pursue this learning further in university.
I went on to complete a five-year undergraduate degree in Environment and Resource Studies at the University of Waterloo. While there, I had the opportunity to intern at two OECs where I planned and taught curriculum-based programming and activities to hundreds of visiting students with varying abilities. I was also able to gain experience working with people of all ages with various physical, emotional and intellectual abilities in settings such as BOOST’s Rainbow Camp, Community Living Toronto’s Shadow Lake Centre, and Wilfrid Laurier University’s Feel the Beat dance program. More recently, I have been a peer buddy at the University of Toronto’s St. George chapter of Best Buddies, and an in-home support worker for a person with Prader-Willi Syndrome. My combined experiences thus far have instilled in me the importance of EE, and also the necessity of providing appropriate support for people with special needs.

These topics matter to me because I have seen all too often the dangers of an increasingly inactive generation of children, having limited or no knowledge about what exists beyond their front door. I have witnessed the mistreatment and misjudgment of people with special needs, often due to a lack of patience or general awareness. I have also seen how students, regardless of ability, engage with the outdoor environment when they get a chance, and how meaningful those experiences can be. I want to encourage a dialogue about how EE can be used to support learners with diverse needs in a variety of settings and increase connections between students and the environment. The method I am using to help achieve this will incorporate the perspectives of educators who create and deliver adapted EE programming.

Various philosophical and theoretical foundations influenced the perspective I took throughout this study. Ontologically, I believe that everything happens for a reason, but the reasons are complex. Epistemologically, I think any form of expression can be considered knowledge, but my biases may play a part in what I consider valid and worth indoctrinating.
Axiologically, I come to research with a biased perspective; I care about environmental sustainability, preservation, conservation and education; I openly engage with and support the special needs community; I am curious about the underlying meaning behind misbehaviour, and I appreciate the differences students with special needs bring. Methodologically I support research that is inductive, ground up, qualitative, and approached from an eco-feminist perspective. Pragmatism, social constructivism, positivism, and disability theory are all interpretive frameworks that align with the way I orient myself in the world.

1.5 Overview

Chapter 1 includes the introduction and purpose of the study, the research questions, as well as how I came to be involved in this topic and study. Chapter 2 contains a review of the literature on this topic. Chapter 3 provides the methodology and procedures used in this study, including information about the participants, data collection instruments, and limitations of the study. Chapter 4 identifies the research participants and describes the data as it addresses the research questions. Chapter 5 concludes with what was learned, insights, and recommendations for practice, further reading and study. References and a list of appendices follow at the end.
Chapter 2: Literature Review

2.0 Introduction

This chapter consists of a critical review of the literature on EE and learners with special needs to help build a foundation to address the main research question: How do elementary educators in Ontario perceive their ability to integrate EE and differentiated instruction for students with special needs in their classroom? Although first-hand accounts will help provide stronger evidence in later chapters, it is helpful to begin with an analysis of the research that has been conducted thus far on similar topics. The bulk of the literature reviewed for this chapter pertained to areas other than Ontario and OEC rather than classroom-based EE, but in this narrow field of research, their findings remain relevant. Four main themes are used to organize this review: integration, views, barriers, and suggestions.

2.1 Integrating Environmental and Special Education

2.1.1 Effects of Interacting with the Environment

Research conducted in the field of integrating outdoor education (OE) into special education curricula and programming has suggested that learning about environmental stewardship and how to care for nature has a positive influence on the way children view and treat themselves and others (Wilson, 1994; Dominguez & Schilling, 2001; Berger, 2006). The same research suggests that the low self-concept and learned helplessness that many students with special needs face can be redirected more positively when developing the skills necessary to learn about and care for the environment (Wilson, 1994; Fox & Avramidis, 2003; Berger, 2006).

For students with emotional and behavioural difficulties (EBD), researchers have found the integration of OE to be successful in promoting pupil inclusion and more positive views of attending school (Fox & Avramidis, 2003; Berger, 2006). With similar views of developing the
whole child, the goals of many IEPs and EE align quite well, providing the necessary combination for developing educational programming that is beneficial to diverse students in holistic ways (Wilson, 1994; Potter & Henderson, 2004).

2.1.2 Teachers as Researchers

Much of the research on integration in the early 1980s was being written by elementary school teachers on how to best use EE to teach basic concepts to students with special needs (Bialeschki, 1981). Incorporating classroom animals was one of the first scenarios researched that returned results of increased compassion and calmness in the place of normally aggressive exhibited behaviours from integrated students (Bialeschki, 1981). For students with sensory stimulation needs, early studies on perception training in EE were successful in allowing students to make sensory connections in the learning they did, and approach each experience with heightened sensory awareness (Bialeschki, 1981).

2.1.3 Best Practices for Programming

Early research on integration found that although many OECs were trying to increase their physical accessibility to be able to welcome students with special needs, the programming offered at these sites was not being adjusted accordingly (Bialeschki, 1981; Potter & Henderson, 2004). Initially, EE programs for learners with special needs sought to develop a greater understanding of the natural environment and the way that humans have an impact on it, as well as promote activities in nature (like hiking and horticulture) as positive ways to spend time (Dominguez & Schilling, 2001; Rynders, Schleien & Mustonen, 1990).

Dominguez and Schilling (2001) then conducted a pilot study. They found that prior to developing an adapted EE curriculum for the classroom, teacher consultation was required – to help determine the most important knowledge gaps and misconceptions to be addressed.
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(Dominguez & Schilling, 2001). EE resources developed by professionals were found as excellent tools to help initiate the planning process (Dominguez & Schilling, 2001). The study focused on three or four central themes (such as recycling, human impacts or the water cycle) (Dominguez & Schilling, 2001). Although it had a limited sample size, the results of this study were positive and encouraged teachers to increase their communication with outdoor educators and park operators for better integrated programming (Dominguez & Schilling, 2001).

2.2 Varying Views on Environmental and Outdoor Education

2.2.1 Perceived Student Outcomes

Priest (1986) established the view that OE is “a matter of many relationships”, or, an experiential process combining adventure education and EE. After conducting a pioneering study on the integration of learners with and without severe disabilities in an intensified camping program, Rynders, Schleien and Mustonen (1990) noted that learners without special needs benefit from integrated EE experiences “in terms of their perspective-taking ability, self-esteem, and judgment of self-worth” (p. 7).

In a day-long study of integration conducted shortly after, Schleien, Hornfeldt and McAvoy (1994) expressed the benefits to be gained across numerous curriculum domains. For this group of researchers, integrated OE has the ability to improve communication, physical fitness, social behaviour and much more (Schleien, Hornfeldt & McAvoy, 1994). Berger (2006) views EE as a form of nature therapy for students with special needs. In his case study in Israel, he used the construction of natural homes outdoors to encourage communication, self-confidence, interaction, creativity, empowerment, responsibility, and self-expression, among many others (Berger, 2006).
The immediate behavioural outcomes of OE and EE experiences tend to be positive (Lappin, 1984), but the academic outcomes have been more difficult to interpret, especially over the long term (Fox & Avramidis, 2003; Crompton & Sellar, 1981). This is typically due to the lack of post-testing and/or monitoring after the completion of studies in this field. Dominguez and Schilling (2001) did find positive results over the long term though; when the subjects of their pilot study completed a second post-test 6 months after they had experienced a five week long EE program, they found a nine percent increase in retained EE knowledge. They also found an unexpected rate of participation from teachers, who found the program highly successful and encouraging because of its discovery approach to learning. The only issue with these findings is the small population that was tested (10 students), which affects generalizability.

During exploratory case studies, participating students have viewed OE as both useful and enjoyable, where program assistants have seen its potential for building confidence and interpersonal skills (Fox & Avramidis, 2003; Crompton & Sellar, 1981; Rynders, Schleien & Mustonen, 1990). In Crompton and Sellar’s (1981) review of literature on whether OE and EE contribute to positive development in the affective domain, they found that such experiences: increase a sense of confidence and self-dependence in school-age children (especially if they are already at an economic advantage), increase levels of happiness and decrease levels of anger, and generally have some positive impact on students’ social and emotional behaviour. These findings were based on studies with children outside of the scope of special needs, but their wider application is proven in numerous other studies (Berger, 2006; Berman & Davis-Berman, 2005; Bialeschki, 1988; Wilson, 1994; Dominguez & Schilling, 2001).
2.2.2 Underutilization

Even in the late 1980s, public schools in North America were viewed as playing an important role in the dissemination of EE (Ham & Sewing, 1988). Unfortunately, from the teacher’s perspective, EE was often seen as relating closely to science, and if the teacher lacked a sound understanding of the science curriculum, both subjects were frequently not given much attention or instructional time (Ham & Sewing, 1988). What Dominguez and Schilling (2001) have found through their research is that creating citizens that are involved in and aware of protecting the environment requires EE that shapes and develops human behaviour, regardless of its connection to science.

For Wilson (1994), EE is seen as a critical area of study that receives little to none of the attention that it should. Potter and Henderson (2004) agree, and regrettably claim that OE has never been seen as a school-wide priority. Fox and Avramidis (2003) believe that OE may not be the single solution to “problematic” behaviour, but they support what it represents, which in their words is “a powerful, albeit underused, tool for reducing disaffection, promoting inclusive practice and decreasing the risk of exclusion for this vulnerable group of pupils” (p. 267).

2.2.3 Outlier Perspectives

Lappin (1984) sees value in OE’s ability to enhance self-concept and help learners with EBD by removing them from the classroom environment, where they may typically associate experiences with failure. Berman and Davis-Berman (2005) have a unique viewpoint on this topic that contradicts most of the literature reviewed for this chapter. They posit the idea that OE experiences are most meaningful when they occur in safe and comfortable environments – opposing what many other experts in the field have always suggested (Berman & Davis-Berman, 2005).
Although Bialeschki (1988) identified EE in her study as a “luxury pursuit” for students with special needs, Dominguez and Schilling (2001) completely refuted this view. Instead, they described the way people with diverse needs are still capable of making choices and decisions about their lifestyles that can benefit their surrounding environment (Dominguez & Schilling, 2001). Perhaps a lack of exposure to the natural environment in the early years may contribute to a lack of environmental sensitivity, but this is not seen by them as enough of a barrier to detract from positive, environmentally conscious decision-making when given the opportunity (Dominguez & Schilling, 2001).

From the Canadian perspective, Potter and Henderson (2004) view OE in Canada as being unique and separate from the methodologies of its American and Scandinavian counterparts. They recommend drawing from literature within similar geographic regions to help support the development of progressive OE programming, rather than clumping all of North America into one approach (Potter & Henderson, 2004).

2.3 Barriers to Implementing Environmental Education

2.3.1 Teacher Perceptions

In Ham and Sewing’s (1988) research study, the authors interviewed elementary teachers at six different public school districts in the United States in order to determine what the barriers (actual and perceived) are that prevent teachers from effectively teaching EE. At the outset of their research, they found four common barriers: conceptual, logistical, educational and attitudinal (Ham & Sewing, 1988). The authors used these four barriers as the basis for posing their research questions and randomly sampled 91 teachers using a combination of closed and open-ended questions.
The findings exposed that less than ten percent of respondents felt that EE was an important part of the curriculum, even though many of them were teaching during a period of heightened environmental awareness in the decade prior (Ham & Sewing, 1988). Teachers also noted time as the most significant logistical barrier, likely viewing EE as a subject to be taught in its own time slot rather than in addition to other subject material (Ham & Sewing, 1988). A third finding was the discrepancy between teachers suggesting that they believed in EE, but admitting to never dedicating any time or effort to teaching it (Ham & Sewing, 1988). Rather than simply providing evidence for the support of EE, these findings expose the fact that positive views of EE do not equate to it actually being taught in schools.

Crompton and Sellar (1981) found a number of inconclusive results with regards to the positive effects of OE/EE on students from lower socioeconomic groups. Findings such as these may discourage teachers from attempting to integrate EE into their diverse classrooms, but the amount of support for EE in many other circumstances may help provide needed encouragement. While Crompton and Sellar had a number of limitations present in their review, they were proactive in listing the common limitations of research in this field in general. The development of appropriately timed post-tests, sufficient sample sizes, accurate sample representations, reliable and valid measurement systems, and unbiased conclusions are all a growing necessity for OE/EE research studies (Crompton & Sellar, 1981). All of these limitations can be seen as setbacks for advancing the successful implementation of EE in the classroom.

Most EE instructional materials are created for a general audience, needing to be modified for specific needs as they arise in the classroom or OEC, but if teachers do not approach such materials with the ability to modify, this can pose a significant time and attitude barrier (Ham & Sewing, 1988). Another perceived barrier is that field trips are necessary to
advance EE (Ham & Sewing, 1988). While visiting OECs are a great addition to EE, the majority of this learning can and should be happening within the classroom, school grounds, or surrounding community (Ham & Sewing, 1988).

Project WILD and Project Learning Tree have been cited as typical training methods for preservice teachers approaching EE, but cognitive and affective outcomes are frequently overlooked, especially when no training program is in place (Moseley, Reinke & Bookout, 2002). Findings of past studies using control groups have even shown that the attitudes of teachers that have completed some form of EE training and those that have not are quite similar (Moseley, Reinke & Bookout, 2002). Ultimately, teachers may view EE positively, but still feel unable to teach it (Moseley, Reinke & Bookout, 2002).

2.3.2 Issues with Accessibility

Often found at the school level to be the largest barriers for elementary teachers is a scarcity of instructional materials and a lack of teacher training and preparation (Wilson, 1994; Ham & Sewing, 1988; Moseley, Reinke & Bookout, 2002). At the OEC level, a lack of consideration for students outside of homogeneous groupings (whether in age, background knowledge, belief, or ability) has contributed to programming exclusion in the past (Bialeschki, 1981; Dominguez & Schilling, 2001; Schleien, Hornfeldt & McAvoy, 1994). When potential visitors to OEC sites in Minnesota were interviewed on their level of interest and knowledge in attending, almost all of the participants claimed to have never been, with reasons such as not having any prior information or being able to use and access the facilities and services (Bialeschki, 1981).

Bialeschki (1981) formed a list of eight problems that were expressed by agency programmers of the special populations that engaged in EE activities at their sites. Although
many of them are not directly applicable to this study (involving mobility needs of senior citizens or more opportunities for family programming), there are some underlying issues identified that tend to come up across OE/EE literature (like lack of awareness of special populations or other attitudinal barriers) (Bialeschki, 1981; Potter & Henderson, 2004; Schleien, Hornfeldt & McAvoy, 1994).

2.4 Suggestions for Successful Integration

2.4.1 Tips for Getting Started

In 1994, Wilson started a short list of action items that might help struggling teachers initiate an interest in EE in their classrooms, all of which are still applicable today. They include starting a recycling program within a school or classroom; decorating the classroom with items from nature; sharing books that are “pro-nature” with students (as opposed to ones that depict animals as dangerous or frightening characters); introducing living plants or animals into the class while demonstrating appropriate care for them; and celebrating Earth Day in some special way (Wilson, 1994). These suggestions are simple and can be appropriate for a wide variety of learners. What Berger (2006) found from his ten-month long study on nature therapy was that nature could be used “as a media for experiential and non-verbal work” (p. 145). Berger suggests teachers use the outdoor environment to go beyond typical classroom management and behavioural approaches and instead use methods that can be better adapted for highly individualized needs (2006).

2.4.2 Collaborating with Outdoor Educators

At OECs, teachers have the opportunity to take on a secondary role while outdoor educators guide learning and provide a platform of content and instruction that teachers can later take back to their classrooms to adapt and expand on, or replicate within their school grounds.
However, while programming in an outdoor setting or with environmental stewardship in mind is not a challenging task for an outdoor educator, the notion of providing adaptive or differentiated instruction to suit learners with special needs in the outdoors is an area of potential discomfort. Teachers must be aware of this, but by providing appropriate support and communication prior to arrival and during the visit, the benefits of an OEC trip can still be received by the entire class (Dominguez & Schilling, 2001).

Suggestions for agency programmers of OECs in Minnesota can also be applied for principals or teachers in classroom settings (Bialeschki, 1981). EE planning and programming needs to receive input from people either in or involved in special populations (Bialeschki, 1981). Additionally, programming for students with special needs should be innovative, challenging and accessible to other classrooms, schools and/or organizations (Bialeschki, 1981).

2.4.3 Pre-service Education

According to the findings of Ham and Sewing (1988), workshops on EE need to be motivational and provide teachers with what they feel is necessary to teach it at the elementary level, instead of leaving them feeling ill-prepared or lacking in knowledge and fearful of approaching it. Initial teacher education also needs to focus on EE as being interdisciplinary rather than a subtopic of science, hopefully shifting the view that the two are directly connected (Ham & Sewing, 1988; Priest, 1986). Lastly, having a method for sharing resources across school boards (i.e. via newsletters, websites or libraries) on EE lessons and materials to help reduce the amount of time and preparation required of teachers can hopefully increase interest and participation (Ham & Sewing, 1988).
2.5 Conclusion

The findings of researchers in the field of EE and learners with special needs help create a more detailed picture of what some of the issues, debates, processes, misconceptions and understandings of this integration have been like over the years. In terms of addressing the main research question, we now have a better idea of how the teacher perspective forms when approaching integration. Additionally, we have seen what the next steps might be in order to advance EE in the diversified classroom when teachers may face a lack of motivation towards it. The next chapter explores the methods used for this study.
Chapter 3: Research Methodology

3.0 Introduction

This chapter describes the methodology I used during the primary data collection stage of my research. In the sections that follow, I describe the general approach, procedures, and data collection instruments, before explaining the participant sampling and recruiting process in greater detail. The data analysis procedures are later described along with a review of the ethical procedures that were taken into account for this study. The strengths and limitations of the research methodology are then discussed, and the chapter concludes by briefly summarizing the approaches and rationale for this methodology in reference to the research purpose and questions.

3.1 Research Approach and Procedures

This research study was conducted using a qualitative approach involving a review of relevant literature and semi-structured, face-to-face interviews with teachers. The interviews were designed to investigate educator self-efficacy regarding environmental education programming in classrooms that include students with special needs. According to the work of Alvesson and Skoldberg (2009), this research approach is best suited to a small case study such as the one I conducted, especially because it involves creating a perspective based on the subject being studied, as opposed to leading the study with one’s own perspective. Approaching the study as a pre-service teacher, it was my hope to gain a better understanding of my research topic from the teachers I interviewed rather than make assumptions based on my own values and ideas.

Qualitative research allows for data to produce a narrative that can be telling of many experiences in education (Britzman, 1991). The knowledge gained from this research went through a process of interpretation to help derive meaning and achieve goals in the areas of
environmental and special education (Britzman, 1991). My own perspective as a researcher contributed to the way information was communicated after it was received from each teacher I interviewed (Elliott, 1994). My ultimate goal when using this approach was to produce a study that contributes to a growing field of knowledge in two important areas of education using first hand experience as an interpretive tool.

3.2 Instruments of Data Collection

Given that this is a qualitative case study, the primary instrument for data collection was the semi-structured interview protocol. According to King and Horrocks (2010), this type of interview can be flexible and open-ended, but it tends to focus on the actual experiences of the participant rather than their general beliefs and opinions. Using a semi-structured interview protocol allowed me to use my research questions to guide and plan how I collected information.

Data was collected using an in-person interview, initiated via email invitation. Prior to the start of the interview the participant read and signed a consent form listing the details of the study, and from then onwards the interview was audio-recorded using a voice memo application on an iPhone. As soon as the interview was complete, I listened to it in its entirety once before beginning the process of transcription. During transcription, I chose to write out all words spoken verbatim while listening to the interview. This was in large part due to the fact that English was one participant’s second language. By transcribing all of the nuances of the conversation, I hoped to gather implied meaning even if it was unclear through the vocabulary used. After transcribing each entire interview, I listened to the audio recording once more to decode any last words or phrases that may have been misheard after the first four listens.
3.3 Participants

Below is a review of the sampling criteria I established for participant recruitment. Following it is a description of the recruitment procedures I used to find interview participants. The third section introduces each of the participants.

3.3.1 Sampling Criteria

The teachers that I interviewed needed to meet the following criteria: have a minimum of one year of teaching experience, have at least 2 students with special needs in their class, and be using environmental education as part of their classroom instruction. The reason for having a minimum of one year of teaching experience was to ensure that they had at least one full school year to modify environmental programming in a variety of potential outdoor conditions. The reason for having experience teaching at least two different students with special needs simultaneously was to help provide insight into program modification requirements in more than just one way. The reason for incorporating environmental education into their teaching practices was to appropriately inform this study along its theme of environmental and special education programming.

3.3.2 Recruitment Procedures

In an attempt to recruit participants, I attended professional development conferences hosted by school boards (TDSB EcoSchools), professional associations (Council for Exceptional Children), teacher education programs (OISE’s Environmental and Sustainability Education Initiative), and subject-area specialization organizations (Council of Outdoor Educators of Ontario). At one of these events, I acquired the contact information of a guest speaker that later became a participant.
Given the small-scale nature of this study and the methodological parameters I had to work within, my sampling procedure relied mostly on convenience sampling. However, I also used snowball sampling by asking one participant to help recruit individuals to join the study (Collins, Onwuegbuzie & Jiao, 2007).

3.3.3 Participant Biographies

With thirty-one years of teaching under his belt, David is the outdoor instructor at a private bilingual school in Toronto, Ontario. He oversees the outdoor education of all students in the Junior School and provides support to a number of teachers and student groups on campus. His teaching background is in science, core French homeroom, and library. The last three years at his school have seen a transition into inquiry-based learning as the main focus.

In her sixth year teaching, Alice heads the first grade class at a community school in Toronto, Ontario with a three-pillar founding philosophy: environmental education, social justice, and community activism. Alice started her teaching career in a junior classroom, but the remainder of her time since then has been spent in split primary classes, including full day kindergarten. Her school community now supports the work she does to incorporate EE into all subject areas at numerous grade levels.

Mary has been teaching for 8 years and currently teaches a developmentally delayed (DD) class of students with primarily Autism Spectrum Disorder (ASD) and Down’s syndrome in Scarborough, Ontario. Her teaching background is in DD classes from primary to junior/intermediate. Although her current school does not specialize entirely in DD classes, she has worked at a school in the past that has.

3.4 Data Analysis

The process of analysis involved reading and rereading the transcribed interview data,
focusing on different aspects of it each time. Using various highlighting methods to differentiate between important quotes and insights in the interview data, I made notes to myself both during the interview and transcription process. In order to ensure a critical and reflective research process, I built in some validation strategies, including: member checking and external auditing (relaying quotes back to participants and having a supervisor review the project), as well as peer review with a ‘critical friend’, certain thick, rich descriptions of participants, and clarification/acknowledgement of my bias/positionality as a researcher (Creswell, 2013). I looked for gaps in my findings through a negative case analysis and acknowledged null data.

The process of finding an appropriate code to use for the given data took a thorough review of the options available and a reflective reading of the transcript. A variety of literary sources were consulted, including Creswell (2013), Saldana (2008), and Bazely (2009). When approaching the task of coding, two main methods were used: descriptive coding and in vivo coding (Saldana, 2008). In vivo coding allowed for a participant-based way to initially categorize concepts that appeared throughout the interview (McNeilly, 2015). Descriptive coding was used for assistance when I felt a concept was necessary to code, but could not fully be captured using any exact quotations. Saldana (2008) recommended the use of three columns to help organize initial codes and then final codes upon later review. This method was used to create a table including: raw data (verbatim transcript), preliminary codes, and preliminary categories. The raw data column only included the participants’ parts of the conversation, which were reviewed three times during coding to help discern more prominent themes each time.

3.5 Ethical Review Procedures

I followed the ethical review approval procedures for the Master of Teaching program. As part of this procedure, I assigned pseudonyms to each of my participants to ensure their
anonymity. An ongoing notification of their right to withdraw from participation in the study was present at every stage of the research process. Keeping participant identity confidential was of utmost importance to ensure the exclusion of any identifying markers to their schools or students. There were no known risks to participation in this study, which was clearly stated in the consent letter (Appendix A) each participant was asked to sign prior to participation.

After the interviews were transcribed, participants had the opportunity to review the transcripts and make corrections and adjustments as needed prior to data analysis. All data (audio recordings and transcripts) were stored on my password-protected laptop and destroyed after 5 years. Participant consent to be interviewed and audio-recorded was verified by signature on the consent letter. This letter provided an overview of the study, addressed any ethical implications, and specified participant expectations (one 45-60 minute semi-structured interview).

3.6 Methodological Limitations and Strengths

This study was bound by a number of ethical parameters that prevented me from interviewing students or parents, or conducting surveys or classroom observations. While there is valuable data to be gathered from semi-structured interviews, according to mixed methods research, these other participants and methods are important for a sequential sampling design (Collins, Onwuegbuzie & Jiao, 2007). It would have been helpful to have access to these other means of acquiring primary data in order to take a more broad and holistic qualitative approach to the study (King & Horrocks, 2010), but a strong foundation was still formed from the data that was collected in these interviews.

The sample size for this study was limited to 2-4 teachers. Collins, Onwuegbuzie and Jiao (2007) confirm that 3-5 participants are ideal for a case study, so this was an appropriate size. However, while the findings can inform the topic at hand, they cannot generalize the experience
of teachers more broadly speaking. Even so, involving teachers in the research process when studying their practice allows for the onus of control to be placed on the teachers to help determine what counts as knowledge about their practice (Elliott, 1994). I was able to hear from the teachers I interviewed in more depth than a survey would have provided, and their responses led to findings in areas I did not expect at the outset of this study. I aimed to validate each teacher’s voice and experience, and give them the opportunity to express their perspective on environmental education programming for students with and without special needs. It is my hope that this was a thoughtful and reflective experience for them.

3.7 Conclusion

In summary, this is a qualitative study that used semi-structured interviews with 3 teachers to explore educator self-efficacy in creating and modifying EE programming for students with special needs in elementary classrooms in Ontario. Teachers interviewed had at least one year of teaching experience and at least two students with special needs present in their class that had a focus on environmental education. I used several avenues to recruit interview participants, including my network of mentors at OISE as well as a call out to educators in accessible school boards. Anonymity throughout the study was provided through the use of pseudonyms and there was transparency in each participant’s ongoing right to withdraw from the study at any time. Although a small sample size and only one primary data collection technique were used, this technique provided a number of benefits to both myself as a researcher and the participants involved. In the chapter that follows, the research findings are presented.
Chapter 4: Research Findings

4.0 Introduction

The chapters leading up to this have introduced the concept of environmental education for students with special needs, provided relevant background information on this topic through the use of a literature review, and described the methodology used to gain primary data for this study. This chapter examines the responses collected during three semi-structured interviews with Ontario teachers. The information is categorized into four themes that are addressed from each of the three perspectives. The themes are: views on environmental education, teaching strategies, external perceptions, and personal perspectives. The subsidiary categories are based on each interviewee’s personal experiences with EE and special education. Each section has a brief introduction and conclusion, with an overall conclusion at the end of the chapter.

4.1 Views on Environmental Education

All three participants were asked, “What do you consider to be environmental education?” Their answers varied widely, which I believe was mostly due to a combination of their training, life experiences, current teaching environments, and student populations that they have worked with. Their responses are described below.

4.1.1 As a PYP Outdoor Educator

David stated his belief that people are innately a part of nature but more and more disconnected from it; increasingly contributing to the world’s environmental problems. He then said he sees his responsibility as a teacher to reconnect children with nature. David’s school is part of the International Baccalaureate (IB) program, which means elementary students are part of the Primary Years Program (PYP). This program focuses on inquiry-based learning, and in the last three years there has been a push for more EE in the curriculum.
David took on the position of being the outdoor educator on site since that shift, and he now spends a lot of his instructional time outside. With a massive ravine as his teaching space, it is easy to see how learning in nature plays a large role in David’s view on EE. From his perspective, the EE he was initially involved in was about recycling, saving energy, and what people could do for the environment. He changed that angle to one more focused on connecting people with nature and noticed some significant differences. David realized that by getting students outside and enjoying the natural environment, a sense of respect and responsibility for it came much more “naturally”. Students were able to feel joy about their time with the environment, rather than burdened by the amount of work to be done to save it.

David, Alice and even Mary to an extent all seemed very supportive of the inclusive and inquisitive power of outdoor learning. Their sentiments are supported by the work of many authors earlier noted regarding the positive effects of interacting with the environment on emotional, behavioural and educational outcomes (Wilson, 1994; Dominguez & Schilling, 2001; Fox & Avramidis, 2003; Potter & Henderson, 2004; Berger, 2006).

4.1.2 As a Community School Teacher

Alice stated her belief that EE can be and look like many different things. Although not committed to any one model in particular, after taking additional qualification (AQ) courses in EE, Alice noted that EE can typically be described as “education for, in and about the environment” – a shortened version of the definition first seen in the introduction (OME, 2009). EE is one of the founding philosophies at the community school where Alice teaches. With supportive colleagues and administration helping guide the way, Alice said that she feels free to use EE as the purpose or driving force for her classroom rather than an additional and separate subject to be taught independently.
Alice also mentioned that she feels EE is a powerful tool for teaching critical thinking literacy skills that can help today’s learners prepare for a “21st century education.” Alice noted how she values EE as an important tool for very young learners, stating, “kids aren’t going to care about the environment when they’re older if they don’t learn about it when they’re young.” One of the goals of Alice’s EE is “for kids to develop a love for nature.” By accommodating for some of her students’ outdoor fears and sensitivities, there is more time for enjoyment and appreciation. One concern that Alice mentioned is about the way EE is mandated to be integrated across all of the curriculum subject areas and grades. While she spoke about feeling that this is an excellent initiative, she noted curiosity about whether it would get more attention and effort from teachers if it were a stand-alone subject to be taught like all the others.

Alice noticed that EE is often underutilized by fellow teachers, and wonders whether EE as a stand-alone subject would contribute to its wider spread teaching. Ham and Sewing (1988) noticed similarly that it was not being given much attention or instructional time, but that the teachers that failed to teach it were also not very comfortable teaching the science curriculum. This suggests that better preparation and training to make teachers generally more comfortable with EE concepts might go farther than just designating it as a subject.

4.1.3 As a DD Teacher

Mary’s experiences teaching have been quite different from David and Alice’s in the sense that Mary’s students have always been developmentally delayed (DD). All of her students at the time of the interview were non-verbal and still developing life skills like eating, cleaning up and using the bathroom independently. With this lens in mind, EE to Mary was stated as generally meaning recycling, not littering and respecting local wildlife. For others, Mary said she
sees EE as a lifestyle, reflective of the decisions that people make when they shop, eat, use materials, travel and interact with their surrounding ecosystems.

As noted by Mary, a large part of her EE program is infused with teaching life skills, focusing on the simple sorting exercises needed to reinforce the concept of recycling and properly sorting waste. Domínguez and Schilling (2001) mentioned recycling as one of the central themes of the EE resources developed by professionals that they used in a study to learn about program planning. It was interesting to see recycling come up again so strongly as an indicator of EE learning goals for Alice and Mary. Art was listed as another curriculum area that gets EE infusion, with seasonal inquiry boards and integrated drawing programs for students with higher order functioning capabilities. Inspired by her own experiences camping, hiking and canoeing as a child, Mary said she hopes her students will develop an understanding that littering is inappropriate and sorting waste, if done correctly, is a small effort that can make a large contribution in the world they will live and interact in.

4.2 Teaching Strategies

All three participants had students with vastly different needs and abilities, so there were certainly some differences in the teaching strategies they spoke about in relation to mixed ability EE programming, but there were many similarities as well. Universal design for learning is but one of the methods mentioned that allows for many students to benefit from differentiation.

4.2.1 For Students with Behavioural Difficulties

David mentioned that he finds, for the students at his school with behavioural difficulties, the more time they spend outside, the better. Initially, those students will run around in the natural environment without any particular aim, but eventually they tend to find a sense of belonging outside and realize that it is a place that makes them feel good. When this happens,
according to David “then all the craziness slows down and we can have better interactions with them.” David said he tries to start with a “hook” (like a game or fun activity) every time he brings a class down to the ravine, which gives students an exciting way to connect with nature and increases their focus as the lesson develops.

David noted that he also offers two to three hours a week outside of class for students to spend time in the ravine with nature, often accompanied by their parents, encouraging family discussions in support of nature-based learning. According to his findings, the students with behavioural difficulties tend to be the ones that take him up on the offer of time for free play outdoors the most. It is a space where kids who are labeled as “difficult” or unable to successfully participate in organized sports can feel confident, happy, and thrive. David’s positive views on the benefits of spending time out in nature for the students with behavioural difficulties at his school directly reflect the results found in Crompton and Sellar's (1981) literature review of EE contributing to positive development in the affective domain.

4.2.2 For General Classroom Students with Special Needs

Alice said she focuses on universal design for learning (UDL) as a strategy that helps students with or without special needs succeed in her class. Having experienced a broad range of student needs throughout her teaching career (physical disabilities, fine motor disorders, ADHD, sensory integration and language processing challenges, behaviour disorders, ASD, etc.), Alice has realized that differentiating for various learning and processing styles benefits all learners. She noted that she sets her classroom up with UDL in mind before even finding out what her students’ needs might be in a given year. A general strategy that she has found to work is the use of a visual schedule. Alice said as she gets to know her students, she suggests more specific
adaptive instructional tools like varied pencil grips and writing surfaces or sensory seats and ball chairs. When it comes to adapting for EE, indoor and outdoor strategies are used.

In Alice’s past teaching experiences, the kindergarten students that she worked with had more sensory sensitivities than she expected. This necessitated the introduction of adapted equipment such as cushions and gardening gloves for outdoor learning. Alice mentioned that she recognizes it is important to accommodate so that students can have fun and enjoy their outdoor learning experiences:

I’ve certainly become more sensitive to realizing that there are kids in our classrooms who have real fears or sensitivities to the natural world. I try to help them overcome that by taking them outside regularly, but also adapting to them when they’re out there so that they’re not miserable the entire time, because, if one of my goals is for kids to develop a love for nature, they’re not going to do that if they’re terrified of bugs.

For indoor EE, Alice stressed that strategies to support learners with special needs, and all learners in general, can be applied in cross-curricular ways. For example, the way guided reading materials in literacy might be adjusted depending on reading level or ability, so too can environmental reading materials and activities be adjusted. Significant time and attitude barriers were found by Ham and Sewing (1988) when teachers were not able to approach EE instructional materials with modification in mind. Using the teaching strategies suggested by all participants can help overcome this.

4.2.3 For DD Students with Autism

Mary mentioned having a lot of experience supporting learners with ASD in her current class. One of the strategies mentioned that she uses when she is just getting to know her students is presenting them with many different activities in order to learn what they like. By finding a
preferred activity for a student, it can be used as a tool to reinforce participation in other classroom activities. Breaks tend to be much more frequent and circle time or group work is shortened. Mary said she likes rotating between three different teaching locations (felt board, table, Promethean board) to give students more opportunities to get up and move throughout the day, but also to help them anticipate transitions. By focusing on waste sorting activities and building skills to support independent tidying, Mary noted how that ensures the content, process, product and environment of her programming meet the needs of all of her learners. Art was listed as another tool used to get EE across while helping her students develop fine motor skills.

4.3 External Perceptions

Although the participants in this study were the people coordinating EE at their schools, students were not the only people affected by it. This section takes a look at the various other stakeholders involved in the EE process, from parents to colleagues to administrators.

4.3.1 Of Stakeholders in the Private School Community

One of the reasons David noted for formally initiating an EE program at his school was the responses his classroom instruction were getting from other students, and subsequently their parents. David frequently took his past students outside during lessons, and many other children who learned about this wondered why they did not have the same opportunities for outdoor learning. Communication with the school’s headmaster regarding these concerns was what ultimately led to more structured EE.

David did note various factors that were also taken into account to assist this introduction though, such as the right timing and open-minded administrators. David mentioned that many parents have had positive responses to the work he does, which he is very optimistic about, but like anything new and different, there are still people that are uncomfortable with the idea.
Although several positive outlooks were listed from many stakeholders involved in EE, none really dove into benefits in terms of perspective-taking ability, self-esteem or judgment of self-worth the way Rynders, Schleien and Mustonen (1990) described in their intensive study. Nature therapy, or nature having therapeutic properties (Berger, 2006) did not come up in the way I thought it would either. What seemed like it would only take a year or two to get teachers on board with, will take more time and patience than first thought according to David. In his own words:

At first we thought that we could have the program in place for just a matter of a few years and people would go and run outside, but we are not yet there, so it’s a new culture for us, it’s a new curve, and people are really supporting it and embracing it, but we just have to be patient.

4.3.2 Of TDSB Colleagues and Parents

Alice noted that her past full-day kindergarten (FDK) teaching partner was on board with EE for their students, which lay the foundation for the program she teaches now. Since transferring to her current school, Alice stated she is better able to freely coordinate, collaborate and plan EE events with colleagues, knowing that the parent community is supportive of the work they do as they have chosen to send their children to that school. In past experiences, Alice mentioned meeting teachers that seemed to be held back by logistical concerns, such as cold temperatures or the idea of running around. In her past school, Alice said the teaching staff tended to both implicitly and explicitly question her EE practices, because of taking a more conservative view of teaching in the sense that bolstering academic skills was first and foremost a priority. Alice stated how she disagreed with those viewpoints and believes that the work she did benefitted students in ways that were not as easily visible, but had long-lasting results:
Especially in that kindergarten context, I think spending time outside where the kids were able to play and run and do all this gross motor development probably did have an effect on their ability to read later on, even if it wasn’t a direct correlational thing.

While Alice stressed she does not claim to solve every child’s academic challenges using this method, she does feel it is more meaningful for students in their academic progress than teachers, especially of students with special needs, might realize:

These kids are going to grow up to be adults in our society, and they’re going to have to have critical thinking skills too. And they’re also going to have to care about the environment or they’re going to keep throwing recyclables in the garbage or vice versa. So it’s like, those are daily living skills that so many of our special needs students need.

In regards to reasons for why teachers may fail to recognize the necessity or importance of EE for all types of students, Alice said she likely attributes this to criticisms and resistance due to ignorance and a lack of understanding of the benefits and value. The parents at both of the schools where Alice has incorporated EE into her teaching have been noted as quite supportive, with mostly shock over the fact that she chose to take kids out during inclement weather rather than concern over the learning they were doing. Alice noted the importance of documenting the EE work she does with her students (through the use of tools like newsletters or bulletin boards), in order to better communicate those meaningful learning experiences to parents and colleagues and help them get on board. Similar to the way Alice found that other teachers would let logistical barriers like temperature and perceptions of outdoor play get in the way of integrating EE into their teaching practice, Ham and Sewing (1988) found the logistical barrier of time being needed to teach EE as an additional subject a significant setback for the teachers in their study.
4.3.3 Of Parents of DD Children

While Mary mentioned that there are a number of mixed opinions in the DD classroom, from teachers to consultants to educational assistants, that each have their own view of what is best for each child’s learning goals, parents seem to be less involved but strongly opinionated about their child’s level of ability. When it comes to parental views of EE learning in the special needs classroom, Mary stated that she does not really know if any of the parents are even aware of the learning that their students do because they are non-verbal.

According to Mary, parents tend to take one of two viewpoints – that their child is and will always be the way they are, needing assistance for most tasks and a focus on life skills; or that they will develop into a more able bodied and minded learner, and should therefore be given formal academic instruction. With such a wide divide in beliefs, Mary said she tends to focus on making sure her students understand how to help themselves when they need it most. This way, regardless of what scenario they may find themselves in in the future, they are able to mobilize themselves as best they can, advocate for the assistance they need, and conduct themselves in public in ways that allow them to feel welcome in their environment.

4.4 Personal Perspectives

The last theme was less congruent across all three interviews, and therefore takes a deeper look into select topics pertinent only to each specific interview. From action research to training experiences to mixed-ability integration, each participant’s area of expertise is shared.

4.4.1 About Inquiry-Based Learning and Action Research

As noted earlier in section 4.1.1, David teaches at a school with a focus on the IB, PYP curriculum which has inquiry-based learning at its core. Although David’s current teaching practice has a focus on nature-based learning, it was not always this way. David noted that when
he first started teaching, and for many years after, he focused on sticking to the methods he was taught – a lot of indoor, text-based learning. Eventually, David said he realized there was something wrong with this method; it was not working for everybody. He claimed it was then that he started to understand the power of inquiry-based learning outside:

I could see that kids were much more engaged. That learning was occurring, questioning was happening naturally, and instead of trying to make them come up with those questions, not knowing how to do it, just walk outside and all of a sudden they are starting to be questioning and curious and…so it became gradually.

David stated his belief that nature is a dynamic classroom, and its unfamiliarity contributes to constant questioning from students. Students start thinking about change, connection, biodiversity, and how it all fits together. These big questions can then be taken back into the classroom and analyzed as a class:

And so, what I see now is, the outdoor becomes the classroom, and a regular classroom.

And then we go back to the classroom as coming back into the lab, where we have all our questions and we want to investigate.

David does investigations of his own. He referred to his work as “action research”, noting that he is part of an ongoing study that has been collecting data for the past two years on student behaviour after either being outside or inside for the period prior. The study uses a blind test with people as observers not knowing where the students were before entering the classroom. David mentioned that the results do not yet include a large enough sample size to draw any conclusions, but that he is looking forward to collecting more data in this field.

David spoke about the action research he is bringing into his teaching practice. His intentions are similar to the methods described by Bialeschki (1981) regarding perception
training for the use of EE with students with special needs in the sense that he is using an EE focused study to determine how to best serve his students. Dominguez and Schilling (2001) and David seemed to have similar issues with small population size affecting the generalizability of their studies. David's study is ongoing though, so the results may eventually prove otherwise.

4.4.2 About Training Experiences and Integration Pedagogy

While the other participants did not list any significant training experiences as guidance or inspiration for the work they do, Alice had many experiences to share that helped shape her pedagogy and her views on EE and special education integration. Alice mentioned that she completed a master’s degree in education at OISE, during which time she took two courses in special education and received part one of her special education AQ. Although these initial training experiences helped her feel qualified, she noted that they did not necessarily make her feel fully prepared. She had gained classroom experience completing two special education teaching placements during her program, curriculum experience through coursework that involved differentiated design assignments, and extra-curricular experience in various other roles like working at camps, but the shock of going into teaching a classroom full-time is something that Alice said “I think nobody can ever be fully prepared [for].”

Alice also mentioned taking the EE AQ with mentors that she really found inspiring. The driving force that Alice noted for her initiation into EE though, was training she received as an FDK teacher. During professional development workshops rolled out for the start of the FDK program, inquiry outside was one of the topics covered that really struck a cord with her. She went on to do a number of workshops through the TDSB on outdoor inquiry, and from then on shifted the inquiry she was doing with her students from inside to outside. Alice noted that she continues to seek further opportunities for professional development in the field of
environmental inquiry. According to Alice, simple anecdotes from colleagues have the ability to affect the way she approaches classroom activities, like thanking the tree that gave the paper for the book she will read before doing read alouds with her students.

Alice stressed that her goals for EE are the same regardless of her students’ abilities. She noted that she tries to take every opportunity she can to avoid the use of possessive language by her students when describing things in their environment and encourages teachers new to EE to “go slow and go at your comfort level”, because there will be challenges in the mixed-ability classroom, but they can be overcome with the right attitude and pace for learning. Alice said she advises teachers to use the same accommodations for outdoor learning that they would for any other subject, like chunking instruction and taking frequent breaks to set themselves and their students up for success. A finding I found particularly interesting was how Moseley, Reinke and Bookout (2002) found that the attitudes of teachers that have and have not completed formal EE training are pretty similar. Of all the training experiences mentioned by Alice, she still felt unprepared going into teaching.

4.4.3 About Mixed-Ability Integration and Teaching for Life Skills

Mary’s unique perspective comes from the students she teaches and the specific skills they need to learn. As stated below, creativity plays a large role in the work she does:

Teaching developmental delay, you have a lot of freedom to get creative, and find new ways of connecting with children and trying different approaches, and I take full advantage of that.

Mary mentioned that training in her field is very limited, but she has still developed numerous methods to help her students gain the life skills they require; she has witnessed students integrate into general classrooms where social skills are a focus as well. Support for a
heavily modified curriculum is one of the main things Mary noted as important for successful integration. Writing, presentation and group work skills were all mentioned by Mary as possible foci of integrated learning. She said that depending on a student’s cognitive ability, rote memory is typically used by DD students to absorb knowledge about rules in their environment.

Hands-on learning activities like paper mache with integrated students were also noted by Mary as ways to make learning as concrete as possible. Mary commented on how able her students really are, and how well they can transfer skills and knowledge. Sorting coloured cubes or teddy bears can easily transfer to sorting waste and recyclables, and sensory experiences like getting to touch taxidermy animals, watch fish swim, or gently care for real plants and animals, go a long way in reinforcing understanding. As she stated:

It’s amazing how much ability kids have. You know, and yes they’re non-verbal, and yes they tend to have limited mobility, and yes they have really limited understanding, but it just means it takes them longer to learn that they can learn, especially what I feel like are the very basic things. When you’re teaching DD, especially low functioning DD, in the first percentile, a lot of what you’re doing is sensory and rote learning, and a lot of it’s associated with life skills. But there’s still a lot you can do. They can still be productive members of society, in even some small capacity.

Mary noted how gentle her students were around classroom animals if they were ever brought into the learning environment. This was reminiscent of the way Bialeschki (1981) described studies on classroom animal incorporation for increasing compassion and calmness among integrated students. The same heightened sensory awareness that was found in Bialeschki’s (1981) studies seem relevant to the way Mary spoke about the importance of sensory stimulation when learning about animals and other EE concepts with her students.
Dominguez and Schiling (2001) noted that people with diverse needs are still capable of making life choices that can benefit their environment – this is very in line with concept of Mary teaching life skills to her student with special needs in order to support their positive interactions with the environment. Wilson's (1994) tips for initiating EE in the classroom include recycling and introducing living plants and animals into the classroom environment in a caring and compassionate way. Mary has definitely made use of these suggestions and seen positive results in her own classroom.

4.5 Conclusion

The results of the interviews provided perspectives on EE and students with special needs from three very different teaching lenses. In terms of the meaning of EE, I learned that outdoor immersion really changed David’s views on the importance of spending time outside as the foundation for nature appreciation. I learned that Alice was able to gain a lot of fundamental knowledge from her EE AQ and apply it so that EE is not treated as an additional subject or one that requires any more or less differentiation than any other subject in her class. I also learned that Mary simplifies her lens on EE so that she can teach the life skills to her students that will be the most meaningful for them in their interactions with the world.

I was surprised that none of the participants mentioned field trips to OECs, but I did not necessarily prompt them to discuss such visits given the structure of my interview protocol, so this could contribute to why this topic never came up during interviews. What did come up were very useful teaching strategies, for use in a number of different contexts. David demonstrated the power of giving students ample time to explore nature in both unstructured and inquiry-driven ways. Alice demonstrated the importance of accommodating for various sensitivities in the outdoor classroom so that learning can be fun for everyone. Mary provided real and relevant
techniques to use for addressing instructional time with DD students and suggested strategies such as taking frequent breaks and using multiple teaching locations to improve engagement and acceptance of transitions.

In regards to the perspectives of those around them, each participant addressed parental views, but others were context specific. David reinforced the power of like-minded administration and an appreciative parent community when adopting new school-wide EE methods, but also addressed the drawbacks of getting teachers on board with the unfamiliar. Alice offered insights that I had not necessarily thought of previously, such as the surprise rather than concern that some parents showed for outdoor learning. Alice also communicated the benefits of working in a supportive learning environment with collaborative colleagues. Mary shone a new light on parent involvement and awareness of EE in the DD classroom: exposing the fact that at least in her teaching experience, it does not exist.

Lastly, the personal experiences each participant brought to their wider understanding of EE illuminated areas I had not even thought to ask about. For David, this took the form of action research that he was actively contributing to on learner behaviour and exposure to the outdoor environment. For Alice, this was combined experience in a number of training opportunities for both EE and special education and the outcomes of such learning on her own teaching practices and pedagogy. For Mary, this was highlighting the concept of life skills, a concept I did not take into consideration for EE prior to conducting the interviews.

While the data collected throughout this process cannot be used to generalize the answer to my research question for educators at large, I did see many similarities between responses in the sense that all three participants tended to take a positive approach to EE and differentiation. Many of the participants’ sentiments were similar to those found in the literature, and only a few
discrepancies between what was found in past studies and the experiences of the participants existed. The next chapter contains a final overview of the key findings, the implications (both broad and narrow) of these findings and recommendations as well as areas for further research.
Chapter 5: Implications

5.0 Introduction

This study was designed to learn more about the way teachers approach differentiation in their classrooms when adapting or modifying EE programming for students with special needs. The findings strongly support the existing literature on the benefits of outdoor and environmental learning, and they specifically give us more insight into how this affects students with special needs in various types of elementary classrooms in Ontario. This chapter summarizes the key research findings, provides the broad and narrow implications for various stakeholders, lists the recommendations that have developed, and points to areas for further research in this field.

5.1 Overview of Key Findings

An in-depth analysis of three interviews with elementary educators revealed four themes: views on environmental education, teaching strategies, external perceptions and personal perspectives. Just as the themes were unpacked using personal narratives in the last chapter, they are used to highlight key findings and to serve as a basis for recommendations in this chapter.

The first theme, views on EE, highlighted the importance of outdoor and nature-based learning for each educator, but it also demonstrated how diverse one’s interpretation of EE can be depending on the population of students being taught. This theme served to remind us that it is important to reflect on how and why we approach EE for the diverse learners in our classrooms.

The second theme, teaching strategies, took a deeper look at the specific tactics each educator incorporated into their repertoire when attempting to balance EE and differentiation for diverse student needs. It served as a reminder that there are so many different ways to approach teaching and that the past experiences of the educator, as well as the resources they have access to and the make up of the students in their class can drastically change the strategies they use.
The third theme, external perceptions, shed some light on the way outsiders view EE in the elementary classroom. Everyone from parents to principals to colleagues has an opinion, and their views can have an effect on the classroom or school culture depending on what strategies are in place to communicate the reasons for and benefits of incorporating EE into teaching.

The fourth theme, personal perspectives, gave us a chance to learn more about what set each participant apart. There was a clear difference in perceptions on training, research and level of student development and understanding from teacher to teacher. This is reflective of the myriad of unique perspectives and abilities each educator brings with them to the classroom. It is each person’s responsibility to recognize their perspective and how it can help or hinder programming depending on what and who is being considered in the planning stages.

5.2 Implications

Although the scope of this research study was limited to three perspectives, the insights gleaned from each educator are reflective of findings in EE literature and often responsive to the gaps that other researchers have found. This study uniquely contributes to a greater body of research that has important implications for reforms in education, especially in relation to school-based, diverse ability settings in Ontario. This section will speak to both the broad and narrow implications of the study and how the educational community as well as myself as a pre-service teacher researcher have been and will continue to be affected by this work.

5.2.1 Broad Implications: The Educational Research Community

Consistent with the findings of numerous researchers, the present study was able to conclude the unique and important benefits of allowing every student to participate in OE/EE programming, whether to increase academic concentration, master life skills, or deepen their connection to nature (Wilson, 1994; Dominguez & Schilling, 2001; Fox & Avramidis, 2003;
Potter & Henderson, 2004; Berger, 2006). An important finding that did not come up in the review of literature pertains to the way EE is approached for students with severe developmental delays. If teachers in this area consistently experience the same lack of training and parental awareness and involvement that Mary found, numerous red flags are raised for policy makers, professional development coordinators and concerned parents and educators.

The inquiry-based approach David takes to working with students in his school’s ravine is supported by the adventure and discovery-based work of Priest (1986) and Dominguez and Schilling (2001). It serves as a reminder to educators and policy makers that the push towards inquiry and play-based learning in the early years can easily transition into environmental and nature-based inquiry throughout elementary education and beyond.

A lot of the barriers to implementing EE that Ham and Sewing found in their 1988 study are very relevant to this day, but Alice easily overcomes what other teachers might view as difficult or inconvenient by educating herself at training workshops, putting herself in an environment with supportive colleagues, and viewing EE as an integrative and cross-curricular way to approach the work she is already doing. The implication of this for the educational community is recognizing the necessity of getting on board with this mentality and putting an end to the view that EE is too time-consuming or challenging to incorporate into pre-existing lessons and unit plans.

5.2.2 Narrow Implications: My Own Professional Identity and Practice

On a personal level, what I have implied from this study is that a lot of the training and professional development recommended by others is something I have engaged in and benefitted from. Priest (1986) and Ham and Sewing (1988) both noted the issues embedded in pre-service teacher training with regards to viewing EE as a subcomponent of science, and this is a realistic
concern. Very recently the Master of Teaching program added EE into their curriculum, but it still remains as an attachment to science. Without experiences external to the graduate program I am completing to gain my teacher qualifications, I would not be able to say I felt comfortable integrating EE into my teaching practice, especially if I did not know where to start in terms of adapting programming for my students with special needs. The implications of this study for teachers, whether pre-service or in-service, should address the importance of using training and personal experiences connecting with nature and working with the special needs population to bolster confidence in this area and support adaptive programming in and out of the classroom.

5.3 Recommendations

The implications of this study lead to several recommendations for pre-service teachers, in-service teachers, school administrators and Ministry of Education personnel. Three recommendations are discussed here in further detail:

1) Re-establishing the goals of *Acting Today, Shaping Tomorrow*

2) Increasing training opportunities for deficit areas in EE and OE

3) Strengthening parental buy-in for EE in the mixed-ability classroom

First, recognizing the importance of integrating government-mandated EE into every classroom and curriculum area is something many administrators and school boards seem yet to have fully accomplished. Although the Ministry of Education had far-reaching intentions with the introduction of *Acting Today, Shaping Tomorrow*, without the in-school support to spread this pedagogy into every classroom, the educators I interviewed will remain within the large minority of teachers that engage in EE with their students. I recommend a re-introduction through the use of wider-spread tactics like conferences or professional development days (rather than a simple mass e-mail to principals) to take this philosophy from paper to practice.
Second, as a pre-service teacher and graduate researcher I view EE from a number of different lenses. Having experience teaching EE within the classroom at practicum placements and teaching OE outside of the classroom at OECs, I have noticed a difference in the mentality of classroom teachers and outdoor educators. The hesitancies that classroom teachers have towards integrating EE are often comparable to the limited experience, understanding or training outdoor educators may have with the special needs population. Improved training opportunities are recommended in both areas respectively. The better teachers are equipped with knowledge of how to infuse and adapt EE, and the more knowledgeable and sensitive outdoor educators are to the needs and abilities of students with special needs, the more cohesive programming can be going forward for the betterment of everyone involved.

Finally, I was surprised to learn how limited the connection seemed between home and school for many of Alice and Mary’s students. With increasing opportunities to engage parents and caregivers in outdoor or environmental learning with their children, as evidenced in David’s extra-curricular, family-based programs, the overall culture of how a school and its community of stakeholders views EE can change for the better. The more people that are engaged in the work that goes on with students and EE, the easier it can become to de-stigmatize EE as having less academic merit than traditional subjects or being a stand-alone addition rather than an integrated and immersive way to broaden every subject area.

5.4 Areas for Further Research

This study contributed to an expansion of the existing literature, but much remains untold of the thousands of other educators in Ontario that may or may not be engaging in EE with their students. Although the present study has laid groundwork in the way of reviewing the literature that connects special and environmental education and interviewing educators that have reflected
both areas in their practice, future research endeavours should seek to survey a larger data set of people across broader landscapes and teaching settings that do and do not have adapted EE programming in place. By collecting more first-hand accounts of experiences with or without EE in Ontario elementary contexts, we can draw a clearer picture of just how effective or ineffective the acquisition of *Acting Today, Shaping Tomorrow* has been for in-service educators.

Another area for further investigation is the connection between OECs and classrooms. From my experience, although numerous OECs may exist within a school board and subsidies may provide opportunities for very affordable visits, the same teachers in each school tend to take advantage of this programming, while the large majority either remain unaware of its existence or uninterested in engaging with it for either lack of time or understanding of its benefits to enhance their students’ curricular learning. What is preventing more teachers from engaging in this experiential education opportunity and how can OECs better serve the largest and most diverse amount of students are potential questions to begin with.

### 5.5 Concluding Comments

The present study attempted to answer the question, *How do elementary educators in Ontario perceive their ability to integrate EE and differentiated instruction for students with special needs in their classroom?* At its conclusion, it has been revealed that the abilities of the students in a class, views of the school community, background experiences of the educator and available learning spaces and strategies all have an impact on what adapted EE looks like in diverse classroom contexts. Although many teachers may find EE too complex or challenging to incorporate into their programming, its relevance to modern education and necessity for student understanding, achievement and empowerment make it a very important cross-curricular subject. There are various ways we can help teachers engage in EE, but a good place to start is outside.
References


Appendix A: Letter of Signed Consent

Date: ______________________________

Dear ____________,

My Name is Rachel Shiderman and I am a student in the Master of Teaching program at the Ontario Institute for Studies in Education at the University of Toronto (OISE/UT). A component of this degree program involves conducting a small-scale qualitative research study. My research will focus on the intersection of special education and environmental education in the elementary classroom. I am interested in interviewing teachers who have experience infusing environmental education into their teaching practices. I think that your knowledge and experience will provide insights into this topic.

Your participation in this research will involve one 45-60 minute interview, which will be transcribed and audio-recorded. I would be grateful if you would allow me to interview you at a place and time convenient for you, outside of school time. The contents of this interview will be used for my research project, which will include a final paper, as well as informal presentations to my classmates. I may also present my research findings via conference presentations and/or through publication. You will be assigned a pseudonym to maintain your anonymity and I will not use your name or any other content that might identify you in my written work, oral presentations, or publications. This information will remain confidential. Any information that identifies your school or students will also be excluded. This data will be stored on my password-protected computer and the only people who will have access to the research data will be my course instructor Ken McNeilly. You are free to change your mind about your participation at any time, and to withdraw even after you have consented to participate. You may also choose to decline to answer any specific question during the interview. I will destroy the audio recording after the paper has been presented and/or published, which may take up to a maximum of five years after the data has been collected. There are no known risks to participation, and I will share a copy of the transcript with you shortly after the interview to ensure accuracy.

Please sign this consent form, if you agree to be interviewed. The second copy is for your records. I am very grateful for your participation.

Sincerely,

Rachel Shiderman
(416) 731 - 0899
rachel.shiderman@mail.utoronto.ca

Course Instructor’s Name: Ken McNeilly
Contact Info: ken.mcneilly@utoronto.ca
Consent Form

I acknowledge that the topic of this interview has been explained to me and that any questions that I have asked have been answered to my satisfaction. I understand that I can withdraw from this research study at any time without penalty.

I have read the letter provided to me by Rachel Shiderman and agree to participate in an interview for the purposes described. I agree to have the interview audio-recorded.

Signature: ______________________________________

Name: (printed) ______________________________________

Date: ______________________________________
Appendix B: Interview Protocol/Questions

1) Background Information

1. What and where do you currently teach?
2. How many years have you worked as a teacher?
3. What grades or subjects have you taught in the past?
4. Have you ever worked at a school with a particular focus in education (such as special or environmental education)?

2) Experience with Students with Special Needs

5. Do you have any students with special needs in your class? If so, can you tell me a bit about the nature of their needs?
6. Do you feel prepared to adapt programming for the students with special needs that are included in your classroom? (Have you always felt this way? Probe about any past training)
7. Do you think mixed-ability classrooms have an effect on the students within them?
8. How do the students in your classroom influence the teaching tools and strategies you use?

3) Experience with Teaching Environmental Education

9. What do you consider to be environmental education?
10. When and why did you start incorporating environmental education into your classroom?
11. Can you tell me a little bit about how environmental education informs your curriculum?
12. Is your environmental education programming adjusted for students with special needs? If so, how and why?
13. What resources do you use to assist in mixed-ability programming in relation to environmental education?

4) Influencing Factors

14. Has anyone or anything in particular influenced or been influenced by the environmental education you incorporate into your classroom?
15. Have you had to overcome any obstacles or resistance in your teaching thus far, particularly with regards to students with special needs and environmental education programming?
16. How do other teachers and/or parents feel about the work you do in relation to environmental education in your classroom?

5) Next Steps

17. What goals do you have for environmental education in your mixed-ability classroom?
18. What advice would you give to other teachers looking to do what you have done in relation to environmental education and students with special needs?